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CENTER FOR BUSINESS AND ECONOMIC RESEARCH
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Kentucky Economic Review

by Charles F. Haywood*

Weakness in the employment situation is a worrisome problem affecting the performance of the Kentucky economy. Total employment of Kentucky residents during the third quarter of 1985 was below 1984 levels for comparable months. The decline in employment in Kentucky contrasts with the national trend, which, in recent months, has been running about two percent above comparable months in 1984.

As can be seen in the "Kentucky Data" section on page 7 of this issue of *Review & Perspective*, Kentucky has experienced decreases in employment in agriculture, coal mining, and manufacturing during the past year. These decreases are significant, but they do not provide a full explanation of the divergence of Kentucky and U.S. employment trends. National data also show decreases in employment in agriculture, coal mining, and manufacturing.

As a matter of fact, the decline in agricultural employment nationally has been relatively more substantial than in Kentucky. From third-quarter 1984 to third-quarter 1985, agricultural employment fell by 7.3 percent for the U.S., compared to a decline of 2.3 percent in Kentucky. The U.S. decline would have reduced total employment by 0.23 percent (or close to one-fourth of one percent) if no other changes had occurred. In Kentucky the adverse relative effect on total employment was only 0.11 percent.

As one might expect, the decrease in mining employment has been less significant for the nation as a whole than for Kentucky. The drop in mining employment nationally was 1.9 percent between third-quarter 1984 and third-quarter 1985, compared to a decline of 4.62 percent in Kentucky. The adverse effect on total employment amounted to only 0.02 percent at the national level while in Kentucky it was 0.12 percent.

Adding the adverse relative effects, the declines in agriculture and mining tended to reduce total employment by 0.25 percent at the national level. At 0.23 percent, the combined effects of lower agricultural and mining employment in Kentucky had about the same adverse effect on total employment as at the national level.

The relative decrease in manufacturing employment was more substantial in Kentucky than in the U.S. as a whole. From third-quarter 1984 to third-quarter 1985, manufacturing employment went down by 1.46 percent in Kentucky, compared to 1.0 percent for the U.S. The adverse relative effect on total employment was 0.24 percent in Kentucky and 0.17 percent nationally.

If no changes in employment other than those described in agriculture, mining, and manufacturing had occurred between third-quarter 1984 and third-quarter 1985, total employment would have declined in the U.S. as well as in Kentucky, with the situation in the state only slightly weaker than at the national level. The greater part of the explanation of the divergence of U.S. and Kentucky trends in employment lies therefore not in the declining sectors but in the expanding sectors. That is, growth in contract construction and in the service-producing industries was at a faster pace in the U.S. as a whole than in Kentucky. Such growth in the U.S. during the past year has been more than sufficient to offset the decreases in agriculture, mining, and manufacturing, with resulting net gains in total employment. In Kentucky, however, growth in contract construction and service-producing industries, while fairly good, has not been sufficient to offset declines in the depressed sectors.

The worrisome implication is that Kentucky may have slipped down to a lower growth path for employment than the U.S. economy in general. A year or so of divergent employment trends is hardly enough experience to confirm that sort of major implication, but it is sufficient reason to give further close study and attention to the employment problems affecting the performance of the Kentucky economy.

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News & Notes

The Center for Business and Economic Research is pleased to announce the appointment of Charles F. Haywood as Chief Economist for the Center. Professor Haywood will head the Center's Economic Analysis and Financial Policy Studies program.

Dr. Haywood is Professor of Finance, College of Business and Economics, University of Kentucky. He has been associated with UK since 1965, and served as Dean of the College of Business and Economics until 1975. Dr. Haywood currently serves as a consultant to the American Bankers Association, as well as several banks and businesses.

A native of Kentucky, Dr. Haywood is a graduate of Berea College, holds a Master's degree from Duke University, and his Ph.D. in Economics is from the University of California at Berkeley. Dr. Haywood's career has included several assignments in Kentucky state government. He was the state's first Secretary of Development and directed the initiation of Kentucky's energy research and development program. Other assignments have included the chairmanship of the Kentucky Council of Economic Advisors and state representative to the Appalachian Regional Commission.

As a result of Dr. Haywood's willingness to become the Center's Chief Economist, the College, the University, and all observers of the Kentucky economy have the opportunity to benefit from the wealth of experience accumulated during his distinguished career. All of the Center's staff join in welcoming Dr. Haywood to his new post.

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The Center for Business and Economic Research will be making two presentations before the Governor's Financial Policy Council on December 18, 1985. The first will include an overview of the status of the agricultural economy in Kentucky and the United States; the second will concern a relative perspective on state and local government revenues and expenditures for Kentucky, the average of the 50 states, and selected other states. The agricultural perspective is being prepared specifically for this meeting, while the overview on state and local government revenues and expenditures is based upon selected sections of the *Commonwealth of Kentucky Annual Economic Report-1985*. Copies of materials related to these presentations will be available upon request.

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On February 25, 1986, Louisville will be the site of the Kentucky state conference associated with the White House Conference on Small Business. The state conference will be at Louisville's Hyatt Regency Hotel.

The state-level conferences are intended to provide an opportunity for small business participants to identify small business problems, develop recommendations for government action, and elect delegates to the national conference. The White House Conference on Small Business, which will convene in Washington, D.C. in August, 1986. The national meeting is expected to formulate specific and comprehensive recommendations for the future of small business in America.

Anyone may attend the Kentucky conference; however, to be a participant and to run as a delegate for the national conference requires that one be an owner, partner, or corporate officer of a small business employing under 500 people. For further information about the Kentucky White House Conference on Small Business, or for registration forms, please contact Mr. Jerry Owen, Director, Center for Business Development, College of Business and Economics, 18 Porter Building, University of Kentucky, Lexington, Kentucky 40506-0205; or, phone (606) 257-1751.

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This publication provides current information concerning the Kentucky economy. It is a forum for the publication of short expository articles, analyses of some aspect of the Kentucky economy, forecasts of the Kentucky economy, and tables of selected data chosen as indicators of developments in the Kentucky and national economies. The publication also sometimes includes information about enhancements to the Kentucky Economic Information System (KEIS).

Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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Kentucky Revenues: Fiscal Years 1985-86, 1986-87, and 1987-88

by James A. Street and Gary W. Gillis*

The Kentucky Revenue Cabinet is required to develop preliminary revenue estimates by October 15 of each odd-numbered year for the General and Road Funds for the current and next two fiscal years. The revenue estimates discussed in this article are revisions for fiscal year 1985-86 (FY 86) and preliminary estimates for the 1986-88 biennium (FYs 1987-88). The article also reviews the economic environment underlying revenue growth and the fiscal impact of the Kentucky Equity Tax Act (KETA) enacted by the 1985 Special Session of the General Assembly.

Economic Outlook

State government revenues are related to performance of the state and national economies. Slow economic growth in 1982 was associated with a General Fund revenue growth of only 5.2 percent in FY 83. Rapid growth in 1983 and 1984 was associated with General Fund increases of 7.1 percent in FY 84 and 7.7 percent in FY 85.

At present, the Kentucky economy appears to be following trends in the national economy but at a slightly lower level of performance. This has not always been the case. During the past two decades the Kentucky economy has tended to end recessions after the national economy. However, there appears to be no systematic tendency for Kentucky to lead or lag the national economy going into recession. The changing nature of business cycles and composition of the state economy disrupts what could be a more systematic tracking pattern between the state and nation.

Personal income growth for the past 10 years for both the state and nation falls into a pattern of relatively rapid growth followed by a period of slower growth. During the rapid growth period, Kentucky kept pace with the nation. However, during the more recent period of slower growth, Kentucky's personal income growth averaged 0.7 of a percentage point below the nation. This relationship with the nation is projected to continue through 1988.

The revenue projections presented in this article assume the following personal income growth rates for the state and nation for the forecast period:

Personal Income Growth

FY	U.S.	Kentucky
1985-86	6.1%	5.4%
1986-87	6.7	6.0
1987-88	7.8	7.1

These projections are based on a continuation of the current pattern of low real growth combined with low inflation for FY 86. Both real growth and inflation are expected to increase beginning in FY 87 and continue into FY 88. This is a business cycle characterized by frequent business adjustments but no formal recession. However, two mainstays in the Kentucky economy—tobacco and coal—face an uncertain future because of changing economic conditions and governmental regulations.

Tobacco faces a slower growing domestic market and the threat of increased imports. Proposed modifications to the price support system would lower both price and poundage quotas and thus if enacted would, of course, lower state income and revenue expectations.

Regarding the coal industry, Kentucky is the nation's leading coal producer with a market centered on electric utility consumption. This is a highly regulated market with current legislation contained in the Clean Air Act and discussions of acid rain legislation having the potential of changing the demand for Kentucky coal. There is also some threat of increased foreign competition for Kentucky coal.

In conclusion, the revenue projections presented in this review are for a continuation of current trends. They should be considered as the "base case," subject to modification by changes in the national economy or in factors specifically affecting the Kentucky economy.

Governor's Tax Proposal—Kentucky Equity Tax Act

The 1985 Special Session of the General Assembly enacted the Kentucky Equity Tax Act (KETA) which affected several General Fund taxes primarily relating to business. Net revenue gains are estimated at $47 million for FY 86, $89 million for FY 87, and $78 million for FY 88. This is a total increase of $214 million for the three year period. The changes were made effective August 1, 1985.

The tax law changes include a new depreciation system for business assets, an increase in the corporation license tax, a change in the corporate income tax rate and a change in the corporate multi-state apportionment formula. KETA also provides that the sales and use tax be applicable to rental or lease receipts from tangible personal property. The inheritance tax on property left to spouses was repealed, and the business inventory property tax rate was reduced.

Revenue Estimates

Revenue estimates for both funds are shown in Tables 1 and 2. The General Fund estimates for FY 86 are shown with and without the effects of KETA in order to provide a basis for reviewing expected economic growth. KETA had no impact on the Road Fund. The annual rate of growth for the General Fund without the effects of KETA ranges between 6.6 percent and 7.4 percent, for an average of 6.9 percent over the three year period. With KETA, the annual increase

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TABLE 1

Summary General Fund Receipts and Revenue Cabinet Estimates
1985-86 Revision and 1986-88 Preliminary

Revenue Source	Actual 1984-85 ($ Mil.)	% Change	Revised Estimate FY86 Without Tax Changes ($ Mil.)	% Change	Revised Estimate FY86 With Tax Change ($ Mil.)	% Change over 84-85	Preliminary Estimate FY87 With Tax Change ($ Mil.)	% Change	Preliminary Estimate FY88 With Tax Change ($ Mil.)	% Change
Sales and Use Tax	$ 820.11	6.8%	$ 879.60	7.2%	$ 885.00	7.9%	$ 942.75	6.5%	$1,010.00	7.1%
Individual Income Tax	729.37	9.1	836.20	5.7	846.00	8.2	915.00	8.9	994.00	8.6
Corporation Income Tax	213.28	6.6	220.20	4.2	246.00	16.4	307.00	24.8	324.00	5.5
Corporation License Tax	59.29	2.1	59.50	1.1	41.00	112.3	59.50	45.1	63.00	5.9
Coal Severance Tax	197.90	8.3	210.00	1.1	210.00	1.1	222.00	5.7	233.00	5.0
Oil Production Tax	9.51	2.2	9.50	– 0.1	9.50	– 0.1	9.50	0.0	9.50	0.0
Mineral Severance Tax	5.84	0.1	6.00	2.7	6.00	2.7	6.30	5.0	6.70	6.3
Natural Gas Severance Tax	5.65	41.2	16.50	208.7	16.50	208.7	8.40	– 49.1	8.90	6.0
Total Property Taxes	234.29	2.2	249.19	6.2	249.19	6.2	243.66	– 2.2	257.01	5.5
Inheritance Tax	50.90	19.0	54.40	6.7	45.00	– 11.7	47.00	4.4	51.50	9.6
Investment Receipts	29.12	– 8.6	29.10	– 0.1	29.10	– 0.1	29.20	0.3	29.23	0.2
All Other General Fund	173.62	4.0	183.46	5.6	185.46	5.6	193.68	4.4	198.51	2.5
TOTAL	$2,843.87	7.7%	$2,715.45	6.7%	$2,762.55	8.5%	$2,983.95	8.0%	$3,185.22	6.7%

Note: No provision has been made for transfer of coal severance tax receipts from the General Fund to the Road Fund.

in the General Fund averages 7.7 percent for the period. The Road Fund is more variable, going from no growth in FY 86 to 5.2 percent in FY 87; the average growth is 2.3 percent for the period.

As shown in Table 1, the General Fund revised estimate without the changes in tax laws is for $2,715 million for FY 86. This is an increase of 6.7 percent over the previous year. KETA results in a further upward revision of $47 million and brings the expected rate of growth to 8.5 percent. The General Fund preliminary estimate for FY 87 is $2,895 million without the tax change, an increase of 6.6 percent. The slight decline in the rate of growth is primarily due to anticipated reduced growth in the sales and use and natural gas severance taxes. Both benefited from unusually large back tax collections in FY 85 which increased the base used in the comparison. With the KETA tax increase, the estimate is for $2,984 million in FY 87, for an increase of 8.0 percent. In FY 88, sales and use tax and corporation income taxes are projected to have increased rates of growth and with the tax changes, the estimate is for $3,185 million dollars revenue or an increase of 6.7 percent.

Table 2 shows the revised Road Fund estimate of $481 million for FY 86; it is virtually the same as the budget estimate that was prepared in January, 1984. Motor fuels normal and motor vehicle usage taxes were revised upward in this estimate; however, this potential growth was offset by a downward adjustment in investment income and the removal of tolls from portions of the state road system. The revised estimate for FY 86 is about the same as actual receipts for FY 85. The preliminary Road Fund estimate for FY 87 is for $506 million, for an increase of 5.2 percent. This estimate is based on the scheduled phase-out of the gasohol credit in June, 1986, and the exclusion of motor pool transfers from Road Fund accounts during FY 87. The preliminary Road Fund estimate for 1987-88 is for $516 million, an increase of 1.9 percent.

Note

[1]See Dennis Glennon and Margaret O. Adams, "Leading Indicators of the Kentucky Economy," *Kentucky Economy: Review & Perspective*, Vol. 9, No. 1, p. 3.

TABLE 2

Summary Road Fund Receipts and Revenue Cabinet Estimates
1985-86 Revision, 1986-88 Preliminary

Revenue Source	Actual 1984-85 ($ Mil.)	% Change	Revised Estimate FY86 ($ Mil.)	% Change	Preliminary Estimate FY87 ($ Mil.)	% Change	Preliminary Estimate FY88 ($ Mil.)	% Change
Motor Fuels Normal Tax	$188.38	– 2.1%	$185.00	– 1.8%	$200.50	8.4%	$199.00	– 0.7%
Motor Fuels Normal, Use and Surtax	7.37	– 8.1	2.50	1.8	8.00	6.7	8.50	6.2
Motor Vehicle Usage Tax	143.99	14.3	153.00	6.3	158.00	3.3	166.00	5.1
Motor Vehicle Rental Usage Tax	5.08	25.5	5.30	4.3	5.40	1.9	5.70	5.6
Passenger Car License Tax	20.07	13.2	20.00	– 0.3	20.00	0.0	20.00	0.0
Weight Distance Tax	29.66	7.3	31.00	4.5	32.00	3.2	33.00	3.1
Special Coal Revenue	.00	—	.50	—	.73	46.0	.75	2.7
Tolls	20.86	0.8	18.58	– 10.9	19.41	4.5	20.49	5.6
All Other Road Fund*	66.50	– 8.3	60.45	– 9.1	62.38	3.2	62.79	0.7
TOTAL	$481.91	6.2%	$481.33	– 0.1%	$506.42	5.2%	$516.23	1.9%

*Incorporates nontax receipts including FY85 and FY86 motor pool transfers of $3.0 million per year.

Note: No provision has been made for transfer of coal severance tax receipts from General Fund. The "Special Coal Revenue" listed above result from House Bill 25 passed by the 1984 Kentucky General Assembly.

Revenue Growth Slows in 1985

by Lawrence K. Lynch*

The purpose of this article is to review Kentucky State Government tax receipts for fiscal year 1984-85 (FY 85), compare the receipts to several estimates made by the author for the Kentucky Legislative Research Commission (LRC), and present a revised estimate for FY 86. The new FY 86 estimate also incorporates the effects of legislation enacted by the July 1985 Extraordinary Session of the General Assembly.

The pace of the United States' economic expansion slowed markedly in the first half of calendar 1985, with real Gross National Product (RGNP) increasing at an annual rate of just a bit over one percent. The consensus outlook for the next four calendar quarters is for a modest acceleration of economic growth. Data Resources, Inc. (DRI), for example, in September forecast RGNP growth rates of 2.7 percent, 2.6 percent, 1.9 percent, and 1.3 percent, respectively, for the four quarters beginning with July-September, 1985.

Kentucky's economic growth also slowed in the first half of calendar 1985. General Fund revenues, which had grown by 10.3 percent in the first half of FY 85 (July-December, 1984), grew by only 5.1 percent in the second half (January-June, 1985).

Receipts vs. Estimates, FY 1984-85

Table 1 compares receipts for the fourth quarters of FY 84 and FY 85, and also compares receipts for the full fiscal years. Revenue growth declined in the fourth fiscal quarter, 1985 for most General Fund taxes; the total General Fund grew by only 3.1 percent—well below its growth rates for the first three fiscal quarters. Individual Income tax receipts actually declined in the fourth fiscal quarter, as did receipts from the category "Other General Fund" (which includes property, license, and inheritance taxes).

The Transportation Fund experienced an acceleration of revenue growth in the fourth quarter of FY 85. Motor fuels tax receipts increased by a small amount in the fourth fiscal quarter, after declining during the earlier part of the fiscal year. This turnaround offset slightly lower growth rates for revenues from other Transportation Fund taxes.

For the full fiscal year, General Fund revenues grew by 7.7 percent, and Transportation Fund tax revenues grew by 5.7 percent. These growth rates were slightly below the rates achieved in the preceding fiscal year, due to the slowing in the growth rates of the U.S. and Kentucky economies in the January-June, 1985 period.

Table 2 compares the FY 85 receipts with the author's estimates for the LRC made in January, 1984, August, 1984, and January, 1985. The January, 1984 estimate underestimated the FY 85 General Fund receipts by $43.2 million, or 1.7 percent; the August, 1984 estimate overestimated the General Fund by $17.1 million, or 0.7 percent; and the January, 1985 estimate overestimated the General Fund by $29.7 million, or 1.2 percent. The largest absolute error was made in the "Other General Fund" category, which accounted for $15.6 million of the January, 1985 overestimate of $29.7 million. Individual Income tax receipts were overestimated by $13.8 million in both August, 1984 and January, 1985. The overestimate of General Fund receipts in January, 1985 was due primarily to a failure to anticipate the magnitude of the slowdown in economic growth which occurred in the first half of calendar 1985. The sharp slowdown was also not foreseen by most U. S. economists. Last December, they were forecasting steady growth in RGNP for 1985 of approximately 3.0 percent: "an expansion without the explosion."

TABLE 1
KENTUCKY GENERAL FUND AND
TRANSPORTATION FUND TAX RECEIPTS
Fourth Quarters and Full Fiscal Years, 1983-84 and 1984-85
(Millions of Dollars)

Tax Source	April-June		%	Full Year		%
	1984	1985	Change	1983-84	1984-85	Change
Sales and Use	$ 480.6	$ 497.3	3.5	$ [illegible]		
					$ [illegible]	[illegible]
Individual Income	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Corporation Income	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Coal Severance	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mineral and Gas Severance	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Beer Liquor Taxes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Other General Fund	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total General Fund	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Motor Fuels	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Motor Vehicle Usage	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Weight Distance	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Other Transportation Fund*	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Tax Receipts	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
State Transportation Fund*	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

*Excludes county share of receipts.

Source: Kentucky Revenue Cabinet.

The author's estimates on behalf of the LRC overestimated FY 85 Transportation Fund tax revenues by $10.9 million, or 2.5 percent, in January, 1984; by $7.7 million, or 1.8 percent, in August, 1984; and by $7.1 million, or 1.6 percent, in January, 1985.

(Continued on page 11)

Lawrence K. Lynch is Professor of Economics and Chairman of the Division of Business and Economics at Transylvania University, Lexington. He also serves as tax consultant to the Kentucky Legislative Research Commission. Professor Lynch is the 1985 recipient of the Distinguished Economist award, presented annually by the Kentucky Economic Association.

selected indicators OF ECONOMIC ACTIVITY

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	July 1985	Aug. 1985	Sept. 1985	Qtr. III 1985	% Chg. 85-II 85-III	% Chg. 84-III 85-III
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
+CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ALL ITEMS (NEW DEF)	322.80	323.50	324.50	**323.60**	0.74	3.26
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, FOOD AND BEVERAGES	301.60	301.80	302.10	**301.83**	0.17	1.90
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, HOUSING (INCL RENTAL EQUIV)	351.60	352.90	353.80	**352.77**	1.29	3.86
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, APPAREL AND UPKEEP	202.80	205.30	209.60	**205.90**	0.31	2.80
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, TRANSPORTATION	321.80	320.70	319.70	**320.73**	-0.10	2.42
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, MEDICAL	404.00	406.60	408.30	**406.30**	1.64	6.43
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ENTERTAINMENT	265.70	265.70	266.80	**266.07**	0.82	3.80
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, OTHER	325.00	326.00	333.30	**328.10**	1.78	6.03
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, SPECIAL INDEX: ENERGY	437.10	433.80	432.60	**434.50**	0.82	1.47
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL COMMODITIES	309.00	307.20	305.80	**307.33**	-0.68	-1.06
PRODUCER PRICE INDEX, ALL FINISHED GOODS	294.80	293.50	290.20	**292.83**	-0.31	0.62
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	293.20	291.50	288.50	**291.07**	-0.30	0.29
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	318.60	317.80	317.90	**318.10**	-0.44	-0.91
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	299.70	298.80	298.30	**298.93**	-0.51	-1.19
PRODUCER PRICE INDEX, CRUDE MATERIALS	303.70	295.50	292.40	**297.20**	-3.68	-9.87
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	231.90	221.40	215.90	**223.07**	-5.73	-13.41
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, SPOT(1967=100)	431.30	438.00	443.20	**437.50**	0.82	-4.44
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, CONTRACT(JUNE76=100)	153.90	153.60	154.90	**154.13**	0.04	0.24
PRODUCER PRICE INDEX, ALL CONSTRUCTION MATERIALS	312.00	311.00	309.60	**310.87**	0.04	1.20
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	27.22	27.07	27.06	**27.12**	-1.38	-1.96
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	63.01	62.28	62.19	**62.49**	-1.48	-2.56
AVG PRICE FOR ELECTRICITY, PER 500 KWH	41.17	41.50	41.62	**41.43**	3.47	-1.79
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	1.04	1.02	1.04	**1.03**	-3.90	-5.34
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.23	1.23	1.21	**1.22**	0.47	2.86
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.15	1.14	1.13	**1.14**	0.29	1.81
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.24	1.22	1.22	**1.23**	0.03	1.86
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.37	1.36	1.35	**1.36**	0.10	-0.24
LABOR FORCE (SEASONALLY ADJUSTED, MILLIONS OF PERSONS)						
LABOR FORCE, TOTAL (INCL RES ARMED FORCES)	117.02	117.02	117.55	**117.20**	0.27	1.50
LABOR FORCE, CIVILIAN (EXCL RES ARMED FORCES)	115.31	115.30	115.82	**115.48**	0.26	1.51
EMPLOYMENT, RESIDENT ARMED FORCES	1.70	1.73	1.73	**1.72**	1.04	0.62
EMPLOYMENT, TOTAL CIVILIAN	106.86	107.17	107.54	**107.19**	0.41	1.79
EMPLOYMENT, AGRICULTURE	3.13	3.09	2.98	**3.06**	-6.92	-7.28
EMPLOYMENT, NONAGRICULTURAL	103.74	104.08	104.57	**104.13**	0.64	2.09
UNEMPLOYED, CIVILIAN, TOTAL	8.45	8.13	8.27	**8.28**	-1.58	-1.93
UNEMPLOYMENT RATE, TOTAL LABOR FORCE	7.20	6.90	7.00	**7.07**	-1.85	-3.38
UNEMPLOYMENT RATE, CIVILIAN LABOR FORCE	7.33	7.05	7.14	**7.17**	-1.84	-3.40
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT (B $) (% CHG, ANNUAL RATE)	NA	NA	NA	**3915.90**	6.68	5.99
U.S. REAL GROSS NATIONAL PRODUCT (B 72$) (% CHG, ANNUAL RATE)	NA	NA	NA	**1688.90**	4.28	2.66
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B $)(% CHG, ANNUAL RATE)	3188.40	3196.40	3207.40	**3197.40**	2.89	4.93
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	168.70	170.20	170.30	**169.73**	1.45	3.08
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1977=100)	124.10	125.00	124.90	**124.67**	0.40	1.08
AVERAGE PRIME RATE CHARGED BY BANKS ON SHORT-TERM BUSINESS LOANS	9.50	9.50	9.50	**9.50**	-6.83	-26.87
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	7.05	7.16	7.08	**7.10**	-5.58	-31.32
PRIVATE HOUSING UNITS AUTH. 17000 PERMIT-ISSUING PLACES (SADJ THOU)	1694.00	1784.00	1804.00	**1760.67**	7.11	15.35
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B $)	503.83	512.98	524.43	**524.43**	5.44	19.88

KENTUCKY DATA

	July 1985	Aug. 1985	Sept. 1985	Qtr. III 1985	%Chg. 85-II 85-III	%Chg. 84-III 85-III
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1710.30	1722.30	1722.10	**1718.23**	1.42	0.04
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1553.40	1572.70	1568.90	**1565.00**	0.28	-0.49
EMPLOYMENT, AGRICULTURAL	66.70	76.00	80.60	**74.43**	13.81	-2.28
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1486.70	1496.70	1488.30	**1490.57**	-0.31	-0.39
UNEMPLOYMENT RATE	9.20	8.70	8.90	**8.92**	13.31	5.69
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1241.70	1250.90	1254.80	**1249.13**	0.31	3.39
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	39.20	39.40	39.00	**39.20**	-1.59	-4.62
EMPLOYMENT, CONTRACT CONSTRUCTION	57.90	57.00	58.80	**57.90**	7.75	5.72
EMPLOYMENT, TOTAL MANUFACTURING	255.40	257.20	256.20	**256.27**	-0.13	-1.46
EMPLOYMENT, MANUFACTURING, DURABLE	141.10	142.90	142.30	**142.10**	-0.28	-2.02
EMPLOYMENT, MANUFACTURING, NON-DURABLE	114.30	114.30	113.90	**114.17**	0.06	-0.75
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	68.70	68.80	68.30	**68.60**	0.64	3.99
EMPLOYMENT, WHOLESALE & RETAIL TRADE	297.20	297.40	295.30	**296.63**	0.47	5.14
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	58.80	58.90	58.20	**58.63**	2.09	4.95
EMPLOYMENT, SERVICES (SIC 70-80)	240.60	243.70	243.30	**242.53**	0.76	4.38
EMPLOYMENT, CIVILIAN GOVERNMENT	217.90	220.70	229.60	**222.73**	-2.24	6.10
EMPLOYMENT, STATE & LOCAL GOVERNMENT	176.30	179.20	188.60	**181.37**	-2.89	6.87
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	38.30	39.00	39.60	**38.97**	0.26	0.86
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	38.80	39.60	40.30	**39.57**	0.17	-0.67
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	37.60	38.20	38.70	**38.17**	0.17	2.51
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	9.50	9.50	9.58	**9.53**	-0.24	2.51
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	10.17	10.14	10.19	**10.17**	-0.26	2.56
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	8.67	8.68	8.80	**8.72**	-0.23	2.63
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	363.85	370.50	379.37	**371.24**	0.02	3.40
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	394.60	401.54	410.66	**402.27**	-0.09	1.87
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	325.99	331.58	340.56	**332.71**	-0.05	5.20
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	8.84	10.78	10.15	**29.77**	-11.37	-16.37
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	2.58	3.15	3.08	**8.81**	-10.17	-24.22
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	15.88	15.06	16.10	**15.68**	5.05	10.58
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	493.87	468.37	516.81	**493.02**	-16.06	-15.87
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	31.10	31.10	32.10	**31.43**	-20.08	-22.64
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	16.57	15.80	17.84	**50.21**	*	-17.76
HOUSING (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	209.50	204.10	187.80	**601.40**	-6.03	12.10
HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTHORIZED, 1 UNIT	660.00	705.00	533.00	**1898.00**	-0.89	35.38
VALUATION, HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTH, 1 UNIT	39.72	37.20	29.43	**106.35**	-2.31	49.36
HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTHORIZED, TOTAL	1112.00	1030.00	957.00	**3099.00**	-21.42	-3.64
VALUATION, HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTH, TOTAL	51.21	45.54	39.03	**135.78**	-12.52	23.97
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	76.20	78.04	96.52	**250.76**	*	7.78
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	10.85	10.25	13.47	**34.57**	*	20.74
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL	193.36	183.93	248.23	**625.52**	*	3.87
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	73.34	71.98	83.27	**228.59**	*	9.90
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	73.51	66.16	76.85	**216.52**	*	3.61
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	6.83	4.52	36.37	**47.72**	*	5.38
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	35.67	43.01	34.06	**112.74**	*	8.40
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	16.19	16.96	16.09	**49.24**	*	-0.24
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	13.25	15.31	14.19	**42.75**	*	22.93

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY), VALUE OF CONSTRUCTION CONTRACTS;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 17,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

Comparing Two Estimates of Strike Incidence in Kentucky

by Joseph Krislov*

Introduction

Data collection in the social sciences has always been difficult. And, as Oscar Morgenstern reminded us in his *On the Accuracy of Economic Observations*, "... It ought to be clear *a priori* that most economic statistics should not be stated in the manner in which they are currently reported, pretending an accuracy that may be completely out of reach and for the most part is not demanded."[1] The existence of two estimates of strike incidence in a state permit an examination of the accuracy of the estimates and an assessment of both agencies' efforts in developing their data.

For many years the United States Department of Labor's Bureau of Labor Statistics (BLS) has collected national strike data, focusing on the number of stoppages, the employees participating in stoppages, and the days lost as a result.[2] BLS has made these data available by state and metropolitan areas.[3] Kentucky's mediation service (Kentucky Department of Labor) began gathering data on work stoppages in the state in 1977, and released strike data for Kentucky for 1978 and subsequent years.[4] Some interchange of information between the state and the federal statistical unit occurred, but strike estimates in Kentucky made by each unit were basically independently derived.[5]

The two agencies' definitions are not identical. The Kentucky mediation service includes all stoppages, while BLS limited its efforts in 1978 through 1981 to stoppages involving six or more employees. Clearly then, the Kentucky agency's estimates of the number of stoppages should exceed those of the federal agency. The increase, however, should not be particularly significant because bargaining units with fewer than six members are rare and these small units do not tend to strike.[6] The addition these small units would make to the overall estimate of the number of striking employees and days idle is therefore probably very small. Hence, it seems likely that the Kentucky estimates of striking employees and days idle are not appreciably increased because of that agency's broader definition.

Presumably, then, the two estimates of strikes in Kentucky should be reasonably close. If they are not, what accounts for the differences? If there are differences, would the new data result in sharply different interpretations? These questions are of course significant inquiries at all times, but they seem particularly relevant in the 1980s because of a BLS policy change.

Beginning in 1982, BLS revised its definition of a strike; previously it sought to include "all work stoppages in the United States that involved six workers or more and continuing for a full day or shift or longer." The new approach, as reported by BLS, includes data on strikes involving 1000 or more workers. Thus, the BLS series beginning in 1982 presents the nation with much less information about strikes; current BLS reports do not include any state, metropolitan, or industry breakdowns.[7] The BLS curtailment of information can be viewed as related to the significant cutbacks in funds to federal statistical agencies that have occurred since 1980.[8]

The Kentucky effort to generate its own strike statistics can be viewed as an experiment. If a state mediation service could generate the data with modest costs and if the results were reasonably close to BLS estimates, it then becomes feasible for states to develop their own strike statistics, supplying a barometer of their labor relations climate through time. And if a number of states embarked upon a similar effort and used comparable methodologies, it is possible that a more meaningful national strike estimate could be forthcoming.

As has been explained, both BLS and the Kentucky Department of Labor published conceptually similar strike data for four years, 1978 through 1981. The two agencies' estimates are presented in Table 1 and are very different. BLS' estimates of the number of strikes far exceeds those of Kentucky's for the first three years, but the 1981 number is quite close. The estimates of strikers vary considerably for the first two years, but are reasonably close in the last two years. BLS' estimates of the days idle far exceed those of Kentucky's estimates for the first two years, but the reverse is true for the latter two years.

To explain these divergent estimates, the author asked BLS staff to review the Kentucky agency's listing of strikes, its estimates of employees involved, and the days idle estimates.[10] BLS then determined which stoppages were included by both agencies and compared the respective estimates of employees and days idle. It also determined which stoppages were listed by one agency and not the other.

1978 and 1979 Estimates

That BLS' estimates of the number of strikers far exceeds the Kentucky agency's estimates in the initial two years is not too surprising. The Kentucky agency failed to include many short stoppages in coal and other national strikes. Some of these strikes occurred in industries such as railroads, in which the Kentucky agency does not mediate. In addition to missing some strikes and thereby excluding substantial numbers

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of strikers, the Kentucky agency's estimates of strikers differs from BLS' estimates in many strikes.

Two reasons, however, seem to account for the substantial discrepancy in the days idle measures for the first two years. First, the Kentucky agency did not include days idle estimates from strikes that continued from one year to the next. As a result, there is a considerable shortfall in the days idle estimate in 1978 and 1979. Second, but by far the most important, the Kentucky agency failed to include some rather large national strikes. In 1978, for example, strikes in coal mining (estimated by BLS to account for 60 percent of the days idle) were not included. In 1979, the Kentucky agency's estimates continued to exclude some mining strike estimates, and other large nationwide strikes. BLS and the Kentucky mediation service made different estimates for the 1979-80 International Harvester strike; the federal estimate was approximately 100,000 days idle over the state estimate in 1979.

Offsetting the state agency's shortfall was its inclusion of some strikes not included in the BLS count; the precise estimates of these were:

	Number	Employees (in thousands)	Days Idle (in thousands)
1978	14	4.4	7.0
1979	30	3.7	67.0

As reported, all should have been included in BLS' count. It is possible that some of the companies listed separately by the Kentucky agency in 1979 may have been included by BLS in a multi-unit strike.

The inclusion of data for all strikes commencing in the previous year but continuing in the current year was attempted by the Kentucky agency in 1980. Some improvement would also be expected in monitoring contract expirations after two years experience. It seems appropriate, therefore, that any judgment regarding the two efforts should focus on the last two years rather than on the entire period.

1980 and 1981 Estimates

Despite the fact that the two agencies' estimates for the number of strikes in 1981 are virtually identical, they differed in arriving at their respective numbers, and the estimates of employees and especially of days idle are at variance. As in 1978 and 1979, each agency located and included stoppages which were not identified by the other unit. The number of such stoppages and the days idle estimates in each year follow:

	Number of Strikes	Days Idle (in thousands)
1980		
BLS/not in Kentucky	21	31
Kentucky/not in BLS	23	128
1981		
BLS/not in Kentucky	14	28
Kentucky/not in BLS	16	18

It is generally accepted by strike analysts that the number of strikes exceeds those officially recorded by statistical agencies, and it is not surprising, therefore, that each agency located strikes unknown to the other. In 1981 each agency identified about 25 percent more strikes unknown to the other, but the differences in the days idle measurements in these strikes was much less of a factor.

The days idle estimates for 1980 and 1981 suggest that significant differences can result from allocations of large strikes. Based on BLS' data, the Kentucky agency included some 1979 strike idleness from the International Harvester and other strikes in 1980. If the BLS estimate is assumed correct and the Kentucky estimates are then reallocated to 1979, the two agencies estimates for 1979 idleness are very close (Kentucky—752,000 and BLS—729,000). Similarly, reallocation would make the two estimates for 1980 closer (Kentucky—719,000 and BLS—564,000) than shown in Table 1. The Kentucky agency's estimate for 1981 for mining is 583,000 more idle days than BLS' estimate and accounts for virtually all the difference in that year. The BLS estimate is undoubtedly an underestimate of strike idleness in mining and the Kentucky estimate was closer to the "true" idleness. It seems obvious, therefore, that the differences in the idleness measures for the past two years are due to improper allocations of a few large disputes. If these allocations had better approximated the "true" incidence, then the days idle estimates would have been very close.

TABLE 1
STRIKES IN KENTUCKY, AS ESTIMATED BY THE KENTUCKY MEDIATION SERVICE AND U.S. BUREAU OF LABOR STATISTICS

Calendar Year	Number KY/BLS	Employees (in thousands) KY/BLS	Days Idle (in thousands) KY/BLS
1978	69 102	19 63	530 2,093
1979	118 137	25 52	554 729
1980	77 109	35 28	919 564
1981	61 62	31 28	1,076 503

Source: Kentucky Mediation Service, Kentucky Department of Labor and U.S. Department of Labor, Bureau of Labor Statistics.

A recurring source of differences in these two years resulted from discrepancies in the number of strikers, and the duration of the strike. As an example, BLS was able to identify 10 of the first 13 strikes occurring in Kentucky in 1981. The number of striking employees was identical in only two instances, but within 10 percent of each other in 3 others. BLS' estimates are typically based on responses to questionnaires,[2] while the Kentucky agency's estimates are obtained by the mediators through direct contacts with the parties. It seems likely, therefore, that the state agency estimates may be more accurate. The days idle measures varied considerably, with one agency's estimates twice or three times the other. One cause of the different estimates seems to be slightly different dates regarding the official ending of a strike. A two or three day difference as to the duration of

a strike for a large unit can easily add hundreds of days idle to a single stoppage.

When a union officially ends a strike and the parties sign an agreement, there may be some dispute as to the exact date the employees return to work. The difference in estimating the days idle in that situation cannot be very significant. But when the parties do not sign an agreement and the employer continues to operate and eventually replaces the strikers, the determination of the days idle measure can be quite difficult. If an employer replaces all his work-force after a week strike, then the "days-lost" to the economy afterward can be viewed as zero. On the other hand, the union is officially on strike and its members are idle during the stoppage. If no settlement is reached, the agency must conclude at some point that the strike is over. The Kentucky mediation service was able to monitor some of these situations closely, thereby arriving at days idle measures that were probably closer to the true idleness than BLS' estimates.

Summary

The Kentucky agency has had difficulty developing estimates that seem reasonably consistent with those of BLS. If the Kentucky mediation service count for 1981 is a harbinger of its future accomplishments, it seems likely that a state agency can do well in identifying strikes within its state. Undoubtedly, a state mediation service's role in settling stoppages is an advantage in ascertaining the number of strikes. Direct contacts with the parties also seems to afford the agency a reasonable opportunity to obtain estimates of the number of participants and the duration of the strikes.

Identifying strikes in which the mediation service does not participate and then determining the strike's incidence in a state appears to be the major problem facing state level preparation of strike-related statistics. A multi-plant or multi-unit strike may escape a state agency's attention for example, because a federal mediation agency would typically be asked to intervene. If the state agency learns of the dispute, it seems likely that its estimate of participants will differ from estimates made by another agency. Thus, it seems that determining the number of strikers in large strikes in which the mediation service does not intervene is a serious obstacle in estimating the days idle incidence. Monitoring the state's major newspapers may be the most effective way of identifying these strikes, but some contact with the parties seems necessary.

Locating all the strikes is a difficult and perhaps impossible task. Despite BLS' experience, it apparently missed some strikes and the Kentucky mediation service missed others. The strikes missed by one agency or the other tend to involve few participants, so overlooking some strikes appears not to distort the major measures of strike incidence. Limiting measurement to strikes involving 6, 10, or perhaps 100 employees would seem to be a way of reducing the costs of the data gathering.

Because of the problems encountered by the Kentucky mediation service in developing its strike estimates, it is difficult to judge whether BLS' efforts were seriously deficient. The 1981 allocation of the national coal strike suggests that BLS may have had difficulties in allocating idleness among the states, and that this problem may have been prevalent in other strikes. While this difficulty may have had a significant impact on state and metropolitan days idle estimates for multi-unit or multi-state strikes, it is unlikely that it could have distorted national estimates. However, now that national estimates are limited to statistics involving 1000 or more employees, state-level collection of strike incidence data may be more crucial than ever.

NOTES

[1]Oscar Morgenstern, *On the Accuracy of Economic Observations* (Princeton, New Jersey: Princeton University Press, 1963), p. 8.

[2]For a discussion of the Labor Department's efforts beginning in 1880, see P. K. Edwards, *Strikes in the United States 1881-1974* (New York: St. Martin's Press, 1981), pp. 301-313.

[3]See, for example, United States Department of Labor, Bureau of Labor Statistics, *Analysis of Work Stoppages, 1979* (Washington, D.C.: Government Printing Office, 1981). For an analysis of strikes in Kentucky based on BLS' data, see the author's *Explaining Kentucky's Strike Pattern*, KCEA STUDIES IN APPLIED ECONOMICS, No. 2 (Lexington, Kentucky: Center for Applied Economic Research, 1983).

[4]The author is indebted to the Kentucky Mediation Service in making these data available in a letter dated September 26, 1984.

[5]BLS has traditionally collected leads on work stoppages from a "variety of sources." It has obtained leads from "a comprehensive coverage of daily and weekly newspapers," from the Federal Mediation and Conciliation Service (FMCS), employer associations, and state labor agencies. When it obtained information about a strike, it mailed a questionnaire to the parties to obtain detailed information regarding the stoppage. See *Analysis of Work Stoppages*, pp. 169-71. The Kentucky mediation agency relies heavily upon the 30-day contract expiration mandated by the Taft-Hartley Act; it supplements this source by newspaper leads. Currently, it has on file contract expiration dates of almost all collective bargaining contracts in the state. It obtains strike data by informal contacts with the parties.

[6]During the four years under review in this article, the Kentucky Mediation Service reported 12 strikes involving fewer than six employers. Some of these strikes were included by BLS in its count because the employers were members of an association unit.

[7]See, for example, "Work Stoppage Data," *Monthly Labor Review*, June 1985, p. 39.

[8]Two critical comments on these changes can be found in P. K. Edwards, "The End of American Strike Statistics," *British Journal of Industrial Relations*, November 1983, pp. 392-394 and David J. B. Mitchell, "Gaps in Monitoring Wages and Industrial Relations," *Monthly Labor Review*, June 1985, pp. 33-34.

[9]See, for example, Robert W. Pearson, "The Changing Fortunes of the U.S. Statistical System, 1980-1985," *Review of Public Data Use*, Volume 12, Number 4 (1984), pp. 245-269.

[10]The author is indebted to Evelyn Traylor of the Bureau of Labor Statistics for assistance in developing this information.

[11]P. K. Edwards, *Strikes in the United States 1881-1974*, p. 314 and footnote 69. See the comment on strikes by federal employees in Sar Levitan and Alexandra B. Noden, *Working for the Sovereign: Employee Relations in the Federal Government* (Baltimore, Maryland: Johns Hopkins University Press, 1983), p. 99.

[12]For a discussion of errors resulting from questionnaire responses, see Morgenstern, *op.cit.*, pp. 28-33.

(Continued from page 5)

TABLE 2

RECEIPTS vs. LYNCH ESTIMATES, FISCAL YEAR 1984-85

(Millions of Dollars)

Tax Source	1984-85 Receipts	Jan. '84 Estimate	Percent Error	Aug. '84 Estimate	Percent Error	Jan. '85 Estimate	Percent Error
Sales and Use	$ 820.3	$ 791.7	− 3.5%	$ 815.7	− 0.6%	$829.5	+ 1.1%
Individual Income	776.6	763.8	− 1.6	790.4	+ 1.8	790.4	+ 1.8
Corporation Income	211.3	204.8	− 3.1	217.6	+ 3.0	210.0	− 0.6
Coal Severance	207.4	204.7	− 1.3	191.8	− 7.5	201.2	− 3.0
Mineral and Gas Severance	11.1	9.4	− 15.3	9.9	− 10.8	9.9	− 10.8
New Liquor Taxes	33.8	38.3	+ 13.3	36.6	+ 8.3	33.6	− 0.6
Other General Fund	485.4	490.0	+ 0.9	501.0	+ 3.2	501.0	+ 3.2
Total General Fund	2,545.9	2,502.7	− 1.7	2,563.0	+ 0.7	2,575.6	+ 1.2
Motor Fuels	195.7	214.8	+ 9.8	210.0	+ 7.3	200.6	+ 2.5
Motor Vehicle Usage	149.1	141.1	− 5.4	146.8	− 1.5	150.0	+ 0.6
Weight-Distance	29.7	28.6	− 3.7	30.0	+ 1.0	31.6	+ 6.4
Other Transportation Fund*	58.8	59.7	+ 1.5	54.2	− 7.8	58.2	− 1.0
Total Tax Receipts, State Transportation Fund*	433.3	444.2	+ 2.5	441.0	+ 1.8	440.4	+ 1.6

*Excludes county share of receipts.

Source: The author.

Revised Revenue Estimate, FY 1985-86

Due to the deterioration in Kentucky's economic performance, relative to the nation, which has persisted since the late 1970s,[1] new elasticity equations[2] were estimated for all taxes based upon data for fiscal years 1977-78 through 1984-85. The principal explanatory variable was still total personal income, but corporation income tax receipts were best explained by movements in U.S. RGNP. A methodological appendix, available upon request from the author, reports the equations used for each major tax.

Since the basic revenue estimation models require as input forecasts of Kentucky personal income and U.S. RGNP, the economic assumptions are critical to the revenue estimates. The revenue estimates relied on the October, 1985 DRI Control Forecast of the U.S. economy; and a November, 1985 forecast of Kentucky personal income by Thalheimer Research Associates.

Table 3, columns two and three, compares the original January, 1984 estimate with the revised December, 1985 estimate. The downward revision for the General Fund is $26.0 million, or 1.0 percent, before considering the effects of the tax changes enacted by the Extraordinary Session of the General Assembly.

The Transportation Fund estimate was revised downward, due to the very poor performance of Motor Fuels tax receipts in FY 85. The oil glut has kept fuel prices at their floor for several years, and gallonage declined in FY 85. The decline in gallonage was due in part to the changing mix of the automobile fleet on the road, with high-mileage vehicles making up an ever-larger percentage of the fleet. For the revised 1985-86 revenue estimate, it was assumed that prices would remain flat, and that gallonage would grow by about two percent. Thus the January, 1984 Motor Fuels tax estimate was revised downward by $22.3 million, or 10.0 percent. The estimate for the Motor Vehicle Usage tax was revised upward by $7.8 million, or 5.2 percent, however, partially offsetting the downward revision of Motor Fuels tax receipts. For the Transportation Fund as a whole, the estimate was revised downward by $5.7 million, or 1.2 percent. Transportation Fund tax receipts are now estimated at $459.7 million, 3.7 percent above the FY 85 total of $443.1 million.

The tax measures enacted by the July 1985 Extraordinary Session of the General Assembly are expected to increase General Fund tax receipts by $47.1 million in FY 86, as shown in columns four and five of Table 3. An itemization of the changes, by tax, is included as a note to this table. Thus total General Fund revenues for FY 86 are now estimated at $2,706.2 million, 6.3 percent above FY 85 revenues of $2,545.9 million.

The revenue estimates just discussed are based upon the assumption of minimal economic growth, in Kentucky and in the nation, during FY 86. A recession, which now appears more likely than a resurgence of strong economic growth, would reduce revenues below the estimates.

Notes

[1]Several of these estimates were discussed in the author's "Kentucky Revenues in 1983-84 and the Outlook for 1984-85," *Kentucky Economy: Review & Perspective*, Vol. 8, No. 3, Fall 1984, pp. 6-7, 10.

[2]Data Resources, Inc., *Review of the U.S. Economy*, September, 1985.

[3]See for example "The Economy: An Expansion Without the Explosion," *Business Week*, December 31, 1984, in which the average growth rate for RGNP in 1985 forecast by economists was 3.0, 3.7, 3.3, and 2.8 percent respectively for the four quarters of calendar 1985; growth rates of 2.8, 3.0, 2.7, and 3.2 percent, respectively, were predicted by the nation's econometric forecasting services.

[4]See *Commonwealth of Kentucky Annual Economic Report—1984* (Lexington, Ky.: Center for Business and Economic Research).

[5]The revenue elasticity model was described in the June 1980 (Vol. 4, No. 2) issue of this publication.

(Continued on following page)

TABLE 3

LYNCH REVISED ESTIMATES FOR FISCAL YEAR 1985-86 TAX REVENUES
INCORPORATING LEGISLATED TAX CHANGES, JULY 1985*

(Millions of Dollars)

Tax Source	Actual Receipts 1984-85	1985-86 Estimates Jan. '84	1985-86 Estimates Dec. '85	Special Session Changes*	Estimated Total Receipts 1985-86	Percent Change FY85-FY86
Sales and Use	$ 820.3	$ 842.8	$ 857.3	+ 5.4	$ 862.7	5.2%
Individual Income	776.9	931.3	803.1	+ 3.8	806.9	3.9
Corporation Income	211.1	220.2	222.6	+ 25.8	248.4	17.6
Coal Severance	207.4	221.8	212.0	—	212.0	2.2
Mineral and Gas Severance	11.1	10.0	11.8	—	11.8	6.3
New Liquor Taxes	33.8	40.8	36.0	—	36.0	6.5
Other General Fund	485.4	516.2	516.3	+ 12.1	528.4	8.9
Total General Fund	2,545.9	2,683.1	2,659.1	+ 47.1	2,706.2	6.3
Motor Fuels	195.7	221.9	199.6	—	199.6	2.0
Motor Vehicle Usage	149.1	150.4	158.2	—	158.2	6.1
Weight Distance	29.7	30.4	30.6	—	30.6	3.0
Other Transportation Fund	68.6	62.7	71.3	—	71.3	3.9
Total Tax Receipts, Transportation Fund	443.1	465.4	459.7	—	459.7	3.7

Source: The author.

*Legislative changes and anticipated revenues are as follows:

Sales and Use:	+ $5.4 million from taxing leases
Individual Income:	+ $3.8 million from depreciation change for unincorporated businesses
Corporation Income:	+ $10.0 million from depreciation rule changes + $18.0 million from new top rate − $ 2.2 million from double sales allocation factor
	+ $25.8 million net increase
Other General Fund:	+ $21.5 million from increase in Corporation License tax − $ 9.4 million from spousal exemption in inheritance tax
	+ $12.1 million net increase

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SPRING 1986
Vol. 10, No. 1

Economic Commentary

by Charles F. Haywood*

Changes in expectations have exerted some strong influences in the national economy since late 1985. Especially important has been the change in expectations about inflation.

In the five-year period from mid-1976 to mid-1981, the Consumer Price Index for all urban consumers (CPI-U) rose 60 percent. During the five years since mid-1981, the CPI-U has increased by only 20 percent, with the index actually showing decreases in early 1986. Even more pronounced has been the deceleration of inflation for producer prices. The increase in the Producer Price Index (PPI) from mid-1976 to mid-1981 was 59 percent, almost the same as the CPI-U. Since mid-1981, the PPI has increased by only 9.6 percent.

The capital equipment component of the PPI showed very rapid increases in prices during the 1970s. From 1973 to 1981 the component index rose by 115 percent. That is, the prices of capital goods more than doubled in a period of eight years. In the five-year period, 1976-1981, the increase was 53 percent. Since 1981, the capital-equipment component in the price index has risen by slightly less than 15 percent.

We mention the capital-equipment component of the PPI because the deceleration of inflation appears to be an important part of the explanation for the strong "bull market" which developed for stocks in late 1985 and which carried the Dow-Jones and other stock price indexes to a series of new record highs. Deceleration of inflation has apparently resulted in substantial upward revisions in the expected *real* value of corporate cashflows, particularly depreciation allowances and after-tax income. Such upward revisions, in turn, caused upward revisions in the perceived real values of stocks, which equated to very large increases in current-dollar prices. The deceleration of inflation also contributed to further declines in interest rates in late 1985-early 1986, adding further to the forces making for an upsurge in stock prices.

In view of the fact that deceleration of inflation has been in evidence since 1981, did anything in particular trigger the marked change in expectations in late 1985? Several circumstances seem to have been influential:

(1) The economic outlook in late 1985, in contrast to views held in the earlier part of the year, suggested that for a period of at least six months the economy would not be threatened by recession nor by upward pressure on interest rates. No new bad news thus became good news, and the stock market began to move upward in a decisive way.

(2) In December 1985 the Gramm-Rudman Amendment to the "Debt-Limit Increase Resolution" was passed by the U.S. Congress and signed into law as the Balanced Budget and Emergency Deficit Control Act of 1985. Despite the prospect that Gramm-Rudman's automatic procedure for effecting across-the-board reductions in the Federal budget deficit will not survive the tests of judicial review, the Act's passage has been widely interpreted as that much-needed demonstration that action will be taken, one way or the other, to close the Federal budget deficit within a reasonable period of time. The further interpretation was that the Federal budget deficit would not be a source of upward pressure on interest rates or prices in general over the next five or six years.

(3) Decreases in crude oil prices in late 1985 and early 1986 seemed to confirm that the dragon of inflation, if not slain, had been thoroughly cowed and was not likely to emerge from its lair for some time to come.

These three developments made for a confluence of short-term, intermediate-term, and long-term prospects of lack of significant upward pressures on interest rates and on the price level in general. An important implication of this confluence is the enhancement of present values of long-life assets. Thus far, the main expansionary effects have been on the demand for stocks and bonds and on the demand for houses. An increase in demand for capital equipment is not yet evident. Lacking an increase in demand for capital equipment, the odds are against a strong expansion in the U.S. economy.

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Earlier this Spring the Center for Business and Economic Research, on behalf of the Governor's Financial Policy Council, released the *Commonwealth of Kentucky Annual Economic Report—1985*. Subtitled "An Economic and Governmental Finance Profile of Kentucky," the report examines economic characteristics and changes in the Kentucky economy, generally from 1970 to 1984, and compares the Kentucky economy with the national economy and, in some sections, with Tennessee and Georgia. In addition to analysis of the state-level economy, it covers local economies by analyzing county-level economic indicators related to educational finance. To place an order for the *Annual Economic Report—1985*, please fill out and mail in the order form located elsewhere in these pages.

Because of the effort required to produce the *Annual Report*, we were not able to publish Vol. 9, No. 4 of *Review & Perspective*. We regret any inconvenience this may have caused our readers. Any person wishing "Selected Indicators of Economic Activity" for the fourth quarter, 1985, should contact the Editor.

• • •

H. Brinton Milward, Director of the Center for Business and Economic Research (CBER), is happy to announce the appointment of Professor Roger J. Calantone to be Director of Research for the Center. Dr. Calantone, Associate Professor of Marketing, College of Business and Economics, University of Kentucky, received his PhD in Marketing and Quantitative Methods from the University of Massachusetts, Amherst.

Before joining the faculty at the University of Kentucky in the Fall of 1985, Professor Calantone taught at the University of Central Florida, where he was also Research Director of the Dick Pope, Sr. Institute for Tourism Studies; at Rutgers University; and at McGill University (Montreal), where he also served as Associate Dean for Research and PhD Director for the Faculty of Management. Roger Calantone has numerous publications and has received many research grants and grant contracts. His research and contract projects have included economic impact studies that utilize various forecasting tools; during 1985-86 he conducted research on the economic impact of the Kentucky State Park System for the Kentucky Department of Parks. While at the University of Massachusetts, Professor Calantone worked as a systems analyst in the development of what has come to be known as the Amherst Model.

In directing the research program for the Center for Business and Economic Research, Professor Calantone will participate in some of the Center's contracted research projects, will be responsible for developing research opportunities for the Center and for College faculty, and will provide quality control for the Center's research activities. CBER's staff join in welcoming Professor Calantone and look forward to working with him.

• • •

Data on the U.S. economy included in the Kentucky Economic Information System (KEIS) annual and quarterly databanks and also shown in the Selected Indicators, page 8 following, reflect the comprehensive revisions in the National Income and Product Accounts that were released by the Bureau of Economic Analysis (BEA), U.S. Department of Commerce in late 1985. Those revisions incorporate benchmark data, statistical changes, some definitional changes and rebasing of the constant-dollar series and price indexes to

(Continued on page 16)

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This publication provides current information concerning the Kentucky economy. It is a forum for the publication of short expository articles, analyses of some aspect of the Kentucky economy, forecasts of the Kentucky economy, and tables of selected data chosen as indicators of developments in the Kentucky and national economies. The publication also sometimes includes information about enhancements to the Kentucky Economic Information System (KEIS).

Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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The Labor Force, Unemployment, and Change in the Kentucky Economy

by Margaret O. Adams and Yee Ling Mui*

Residence-Based Estimates

Since 1980, the Kentucky unemployment rate for the civilian labor force has exceeded the national rate. In 1980, 1981, and 1982 both the Kentucky and the national rates rose as general economic conditions worsened. In 1983 the national rate declined slightly, heralding improved economic conditions across the nation in general, but the Kentucky rate increased by a full percentage point to 11.6 percent, the highest annual level since these data began to be estimated in 1961. Both the Kentucky and the national unemployment rates declined in 1984, suggesting that Kentucky's economy was improving along with the nation's, but the Kentucky rate remained almost two percentage points above the national rate. Revised annual data now indicate that while the national rate continued to decline in 1985, reflecting continued improvement in overall national economic conditions, the Kentucky rate again increased slightly, suggesting that in Kentucky, at least in terms of unemployment, the economy was not improving to a comparable extent. Further, the 1985 Kentucky unemployment rate, 9.5 percent, was *more* than two percentage points higher than the national rate; this divergence from the national level was greater than at any time since the early 1960s.[1]

overall trend suggested by the long- and short-term unemployment rate statistics seems to warrant further investigation. A starting point for this is to compare the unemployment rates in Kentucky not only with the national rates, but also with the rates for the South in general and for the East South Central, of which Kentucky is a part. Comparative rates for all of these areas are displayed in Table 1.[2]

What emerges from a review of these data is an awareness that not only have the rates of unemployment in Kentucky been at a higher and diverging level from those of the nation since 1980, but they have also been well above those for the states of the South every year since 1980 and above the East South Central region every year except 1984. In terms of the monthly data for 1986, the Kentucky unemployment rates continue to be above all regions shown; the direction of change in the rates is relatively consistent across the regions. Nonetheless, it may be too early to say much about how the regional economies are really faring in 1986.

There is a great deal we do not know about the status of employment, if we limit our review only to a comparison of unemployment rates. In particular, rising rates of unemployment may reflect an increase in unemployment among persons previously employed. On the other hand, a rise in the unemployment rate can follow a net increase in the number of persons who enter the labor force, i.e., who begin looking for work, who were neither previously employed nor looking for work in the area in which they enter the labor force, and who therefore were not previously in the area's civilian labor force. (The civilian labor force is defined as the sum of the estimates of the number of employed residents and the number of unemployed residents; the unemployment rate is the percentage of the civilian labor force that is unemployed.[3])

TABLE 1
RELATIVE UNEMPLOYMENT RATES: CIVILIAN LABOR FORCE

	1976	1980	1984	1985	1/1986	2/1986	3/1986
					(seasonally adjusted)		
United States	7.7%	7.2%	7.5%	7.2%	6.7%	7.3%	7.2%
Kentucky	5.6	8.0	9.3	9.5	10.1	10.9	10.4
					(not seasonally adjusted)		
United States	7.7	7.2	7.5	7.2	7.3	7.8	7.5
South[a]	6.7	6.4	7.2	7.2	7.5	7.9	7.7
East South Central[b]	6.2	7.9	9.8	9.0	9.9	10.2	9.8
Kentucky	5.6	8.0	9.3	9.5	11.7	12.6	11.3

Source: U.S. Department of Labor, Bureau of Labor Statistics, *News*, No. 86-83 (March 3, 1986), No. 86-150 (April 15, 1986), and No. 86-192 (May 13, 1986). Also, *Monthly Labor Review*, March 1985, p. 21. Kentucky and U.S. data are stored in the Kentucky Economic Information System (KEIS); regional calculations for monthly estimates made by the author from published state-level estimates of the civilian labor force and unemployment.

Notes

[a] States included in the South are: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; and the District of Columbia.
[b] States included in the East South Central are: Alabama, Kentucky, Mississippi, and Tennessee.

Estimates of unemployment for the first three months of 1986 suggest that the Kentucky situation has not improved to any noticeable extent. It is well to keep in mind, however, that these data are subject to later revision. Nevertheless, the

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Thus, if employment growth does not keep pace with the growth in the size of the civilian labor force, there is an increase in the reported rate of unemployment. One related factor is that an increase in the number of persons seeking work can be the by-product of an increase in the total population aged 16 years or older, i.e., the labor force population.

This leads then to examining several related questions:

- is the increase in the Kentucky unemployment rate related to an increase in the size of the civilian labor force?
- are there fewer employed persons, in an absolute sense, now compared with a time when the unemployment rate was lower?
- if the civilian labor force has been increasing, has this increase been comparable to an increase in the size of the labor force population?
- what has been the national experience?

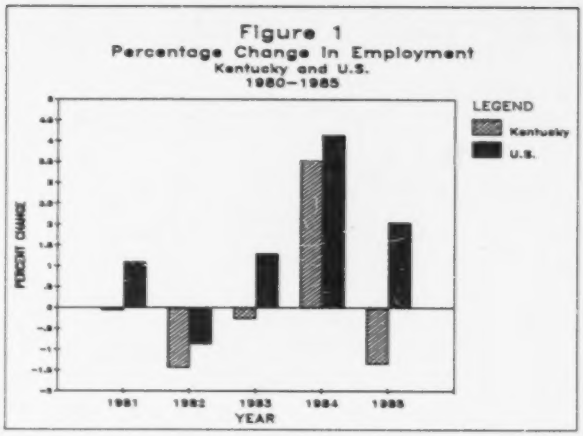
Many indicators of the Kentucky economy, especially levels of total nonagricultural wage and salary employment, reached their peak in 1979.[4] All the industry-level employment indicators are produced from workplace-based data. Because of this, analysis of the Kentucky economy of the recent past frequently is based upon conditions dating from 1979. However, statistics regarding the employment of Kentucky residents, as contrasted with employment within Kentucky, peaked in 1980. This was also the first year since 1972 in which the unemployment rate in Kentucky was higher than in the nation. We have therefore chosen 1980 as the base year for examining Kentucky and U.S. data on the civilian labor force, employment, and unemployment.

As is shown in Table 2, the number of employed Kentuckians in 1985 was only three-tenths of a percent above the 1980 level. By comparison, employment of all U.S. residents was almost eight percent (7.9 percent) higher in 1985 than in 1980. See also Figure 1; it also shows that the net change in employment of Kentucky residents during the years 1980-1985 was negative in every year except 1983 to 1984. For the U.S., there was a positive net increase in overall employment every year except 1981 to 1982.

TABLE 2
CHANGE IN U.S. AND KENTUCKY CIVILIAN LABOR FORCE DATA
(Index 1980 = 100)

	Civilian Labor Force		Employment		Unemployment	
	U.S.	KY	U.S.	KY	U.S.	KY
1976	89.9	89.2	89.4	91.5	96.4	62.4
1977	92.5	93.1	92.7	96.5	90.8	54.1
1978	95.6	96.1	96.7	99.0	80.7	63.2
1979	98.1	96.6	99.5	99.2	80.0	66.9
1980	100.0	100.0	100.0	100.0	100.0	100.0
1981	101.6	100.4	101.1	99.9	107.9	105.3
1982	103.1	101.4	100.2	98.5	139.6	134.6
1983	104.2	102.3	101.5	98.2	139.4	148.9
1984	106.1	103.2	105.7	101.7	111.1	120.3
1985	107.9	102.0	107.9	100.3	108.3	121.1

Source: Kentucky data are estimated by the Kentucky Cabinet for Human Resources; U.S. data are from the Bureau of Labor Statistics. All data may be accessed through the KEIS.



In addition, the number of unemployed persons in Kentucky in 1985 was over 21 percent greater than in 1980, when the unemployment *rate* was 8.0 percent of the civilian labor force (see Table 1). By contrast, the 1979 rate of unemployment in Kentucky was only 5.5 percent of the civilian labor force, when, as indicated by the Table 2 index, the actual level of unemployment was 33.1 percent less than in the 1980 base year. For the U.S. as a whole, the number of unemployed persons in 1985 was 8.3 percent greater than in 1980, even though the *rate* of civilian unemployment in both 1980 and 1985 was 7.2 percent. The rates of U.S. unemployment in 1980 and 1985 are identical, despite an 8.3 percent increase in the number of unemployed persons, because the number of employed persons in the U.S. in 1985 was also almost 8.0 percent greater than in 1980. In other words, the relative distribution between employment and unemployment in the U.S. was basically the same in 1980 as in 1985: the level of unemployment had increased 8 percent, but so had the employment level, resulting in an increase of the civilian labor force also of almost 8 percent.

Some analysts look at the higher absolute level of unemployment in 1985, compared with 1980, and say that this is a negative reflection of the state of the U. S. economy; others look at the higher absolute level of employment in 1985 and say this is a positive indication of growth in the national economy: more people are working than ever before. Still others look at the levels of unemployment from 1980 through 1985 and say that while there are more people unemployed in 1985 than in 1980, the national economy has clearly recovered from the depressed conditions of 1982 and 1983 when the level of unemployment was over 39 percent greater than it had been in 1980. The conclusions are somewhat dependent upon the perspective from which they are made.

In Kentucky, the percentage point increase in the number of unemployed persons is substantially more than the percentage point increase in the number of employed persons, meaning that overall, unemployment has increased more than the size of the civilian labor force. With the civilian labor force only 2.0 percent larger in 1985 than in 1980, and with resident employment levels basically the same in 1985 as in 1980, the increase in the size of the Kentucky civilian labor force since 1980 is almost entirely related to an increase in the number of unemployed persons.

Examining the data since 1983, the year in which the level of unemployment in Kentucky was almost 50 percent higher than it had been in 1980, several things are apparent. First of all, the level of employment in Kentucky in 1983 was 1.8 percent below the 1980 level, but it increased 3.5 percentage points in 1984 and then declined 1.4 percentage points in 1985. At the same time, the absolute level of unemployment declined substantially from 1983 to 1984, 28.6 percentage points, and then rose slightly (0.9 percentage points) from 1984 to 1985. The result of these changes is that the Kentucky civilian labor force was smaller in 1985 than in either 1983 or 1984. The higher rate of unemployment in Kentucky in 1985 was therefore within a smaller civilian labor force than in either 1983 or 1984. Thus not only is the change in the unemployment rate in Kentucky in a negative rather than a positive direction when compared with the national rate, the change in the civilian labor force and the absence of meaningful change (i.e., the absence of growth) in the employment of Kentucky residents also diverge from national trends.

Perhaps differing levels of growth in total population, in labor force population, defined as all residents 16 years of age and above, and in that part of the labor force population that is in the civilian labor force explain the differences in the Kentucky and U.S. patterns. For example, has the change in total population in Kentucky been comparable to population growth nationwide; has the change in the number of persons in the labor force population been comparable; and within the labor force population, has there been comparable growth in the number of persons in the labor force?

As shown in Table 3, total U.S. population grew 4.1 percent from 1980 to 1984; in Kentucky, the change was only 1.7 percent. (Through 1985 the growth was 5.4 percent for the U.S. and 1.8 percent for Kentucky.) That part of the population that is considered the labor force population grew 5.1 percent in the U.S., 1980-1984; in Kentucky the growth of the labor force population was 3.2 percent. In Kentucky as well as in the U.S., the labor force population change was greater than the total population increase. There was a decrease in Kentucky since 1980 in the total population under 16 years of age. (In both the U.S. and Kentucky, the under-16 population decreased in size from 1976 to 1980.)

TABLE 3
RELATIONSHIP OF CHANGE IN TOTAL POPULATION, LABOR FORCE POPULATION AND CIVILIAN LABOR FORCE: U.S. AND KENTUCKY
(Index 1980 = 100)

	1976		1980		1984	
	U.S.	KY	U.S.	KY	U.S.	KY
Total Population	95.7	96.4	100.0	100.0	104.1	101.7
Non-Labor Force Population	104.5	105.6	100.0	100.0	100.8	97.2
Labor Force Population	92.9	93.2	100.0	100.0	105.1	103.2
Civilian Labor Force	89.9	89.2	100.0	100.0	106.1	103.2
Not in Labor Force	98.0	99.5	100.0	100.0	103.5	103.3

Source: Population data are estimated by the Bureau of the Census, U.S. Department of Commerce. For Kentucky, estimates of the non-labor force population (population from birth through 15 years of age) and labor force population (population 16 years of age and older) are from the Cohort Component Model developed and maintained by the University of Louisville's Urban Studies Center. Estimates of the U.S. Civilian Labor Force are made by the Bureau of Labor Statistics, U.S. Department of Labor and for Kentucky these estimates are made by the cooperative agency, the Kentucky Cabinet for Human Resources. All of the above data can be constructed through the KEIS.

In terms of the participation in the labor force of persons in the labor force population, the U.S. civilian labor force increased slightly more than the U.S. labor force population, whereas in Kentucky the increase in these two levels was basically the same. In the U.S. and Kentucky, the increase since 1980 in the number of persons included in the labor force population but not in the labor force, such as students, homemakers, retired persons, and other nonemployed persons who are not actively seeking employment was basically identical.

Given the lack of significant growth in the numbers of employed Kentuckians, and the identity in the growth of the labor force population and the labor force, it is evident that the growth of the Kentucky civilian labor force since 1980 was related to the increase in its labor force population. For the nation as a whole, however, the growth of the labor force can be attributed more to increased employment of those in the labor force population than to an increase in that population. The higher level of unemployment in Kentucky throughout the last several years thus seems related to the growth of the labor force population and the lack of employment for that increased population. This is despite the fact that Kentucky appears to have experienced net out-migration of its population during this time.[5]

TABLE 4
CHANGES IN KENTUCKY NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT (DATA SEASONALLY ADJUSTED)

	February 1979	February 1986	Percent Change 2/79-2/86
	(Thousands of Persons)		
Total Nonagricultural Wage and Salary Employment	1248.58	1272.65	1.9%
Goods-Producing Industries	430.53	366.22	-14.9
Construction	72.27	65.29	- 9.7
Mining	57.71	46.28	-19.8
Manufacturing	300.55	254.65	-15.3
Services-Producing Industries	817.21	911.95	11.6
Transportation, Communications and Public Utilities	69.99	68.24	- 2.5
Wholesale Trade	63.94	70.37	10.1
Retail Trade	206.51	236.52	14.5
Finance, Insurance and Real Estate	50.36	60.10	19.4
Services	201.66	251.17	24.6
Civilian Government	224.76	225.54	0.3

Source: Data seasonally adjusted within the KEIS from monthly data estimated by the Kentucky Cabinet for Human Resources.

Workplace-Based Estimates

An analysis of change in the Kentucky economy would be incomplete without a brief review of change in workplace-based employment. Table 4 compares the estimates of seasonally adjusted nonagricultural wage and salary employment for February 1979, the year of Kentucky's peak in this indicator, with the values for February 1986, the most recent month of revised data at the time this article is going to press. The employment estimates are separated into the goods-producing and services-producing industries. What emerges from a review of these data is similar to the overall analysis above.

(Continued on page 15)

Educational Attainment in Kentucky

by J. Beth Smith*

Education and the link between education and economic development have been issues of renewed public concern in recent years. In Summer, 1985, the [Kentucky] Governor's Office of Policy and Management contracted with the Center for Business and Economic Research (CBER) at the University of Kentucky for a multi-phase study that examined several aspects of education and economic development in Kentucky. The primary motivation for undertaking the study was to provide policymakers with a better understanding of the long-term development of the state's educational environment, relating this to the Commonwealth's potential for economic development. The following article derives from some portions of that study and focuses on educational attainment in Kentucky compared to the other southern states and also reviews levels of educational attainment within Kentucky.[1]

Educational Attainment in Kentucky

The initial findings of our study indicate that Kentucky holds a *uniquely* low position when examining educational attainment levels among the southern states.[2] Also, diversity of educational attainment levels among counties was greater in Kentucky than in any of the southern states.

To assess educational attainment in Kentucky as compared to the other southern states, county-level data on educational attainment, defined as median years of schooling of the resident population, 25 years or older, were evaluated for all southern states. These data were taken from the 1980 decennial census and are therefore consistent across states.[3] They are one of the most commonly used comparable measures of educational resources for geographically specific areas. In using these data it is well to keep in mind that all county-level data from the decennial census are cumulative statistics compiled from current residents' individual responses to the census questionnaire. In the case of the statistics on median years of schooling completed, the data reflect the responses of the current (1980) residents of a county who are 25 years of age or older. Since this statistic *excludes* any measure of educational attainment of persons who attended school in a county but were not living there in 1980 and *includes* attainment for all current residents, regardless of where they attended school, it cannot be used, by itself, as a measure of the educational opportunities currently provided to school-age children in the county.

For each of the southern states, counties were grouped by educational attainment levels: Low: 8.5-10.0 years, Medium: 10.1-11.5 years, and High: 11.6 and above. Table 1 lists the percentage of counties per state that fell into the low attainment category. Kentucky immediately stands out as an anomoly in the southern region. Its large percentage of counties with low attainment, 39.2 percent, is far greater than any other state in the region. Only one other state, Tennessee, with 22.3 percent of its counties demonstrating low attainment levels, has more than 10.0 percent of its counties falling in this category.

TABLE 1

PERCENT OF COUNTIES WITH LOW EDUCATIONAL ATTAINMENT, 1980

Alabama	1.4%
Arkansas	2.7
Florida	0.0
Georgia	6.3
KENTUCKY	39.2
Louisiana	4.7
Mississippi	4.9
North Carolina	0.0
Oklahoma	0.0
Tennessee	22.3
Virginia	7.4
West Virginia	7.5

Source: Bureau of the Census, U.S. Department of Commerce. *1980 Census of the Population*. Vol. 1, Ch. C. *General Social and Economic Characteristics*, 1984 (separate publications for each of the states considered).

To some extent, the range of educational attainment measures diversity of educational attainment levels within a state. The range for a given state was calculated by subtracting its lowest county-level educational attainment from its highest county-level educational attainment. For example, the highest county-level median years of schooling in Kentucky was 12.8 (Fayette County) and the lowest county-level was 8.5 (Clay, Cumberland, Jackson and Owsley counties). The difference, 4.3 years, was the educational attainment range for Kentucky in 1980. Table 2 indicates that this was the widest range among the southern states. It also suggests that within the southern region, homogeneity of counties on the educational attainment measure seems prevalent in Florida, South Carolina and Alabama; diversity appears greatest in Kentucky, Tennessee and Virginia.

Looking just at Kentucky, the diversity of educational attainment levels is further emphasized by Figure 1. The counties are shaded according to the educational attainment categories described previously. Not only is the large percentage of low educational attainment counties readily apparent, but the relatively low number of counties falling into the middle attainment category is also visually striking. Counties in Kentucky typically fall into the low educational attainment category or the high educational attainment category. Another important observation is that these are regional disparities. The eastern portion of Kentucky is primarily dominated by low attainment counties with the northern, central and western regions dominated by higher attainment levels.

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TABLE 2

EDUCATIONAL ATTAINMENT RANGE BY STATE, 1980

State	Highest County-Level Median Educational Attainment	Lowest County-Level Median Educational Attainment	Educational Attainment Gap
	Years of Schooling		
Alabama	12.6	10.0	2.6
Arkansas	12.6	9.2	3.4
Florida	13.0	10.7	2.3
Georgia	12.7	9.6	3.1
KENTUCKY	12.8	8.5	4.3
Louisiana	12.7	9.7	3.0
North Carolina	14.1	10.4	3.7
South Carolina	12.7	10.6	2.1
Tennessee	12.6	8.5	4.1
Virginia	12.9*	8.8	4.1
West Virginia	12.4	9.1	3.3

*Arlington County, with a median attainment level of 14.7, was excluded as it was determined to be an outlier, i.e., it demonstrated a significantly higher educational level than any other county in Virginia. Its inclusion would have distorted the educational attainment gap which represents the general degree of diversity of educational attainment in Virginia.

Source: Same as Table 1.

Such explicit regional differences are not typical of the southern states. Other southern states, even those with an educational attainment range similar to Kentucky's, had most of their counties falling in the high attainment category or were fairly evenly distributed between the high and middle categories. However, a recent report by the Southern Growth Policies Board (SGPB) found that a disparity in educational attainment levels did exist between southern metropolitan and nonmetropolitan areas.[4] Specifically, within the southern region, educational attainment was generally at higher levels in metropolitan areas than in nonmetropolitan areas. This diversity between metropolitan and nonmetropolitan areas generally holds true for Kentucky.

All the metropolitan counties in Kentucky, except Carter County, fall into the high educational attainment category.[5] With the exception of the Ashland-Huntington metropolitan area (Boyd, Carter, and Greenup counties in Kentucky), all Eastern Kentucky counties are nonmetropolitan. In other words, it is not solely a regional disparity but also one of metropolitan versus nonmetropolitan.

The data presented indicate a large portion of the counties in Kentucky had a median educational attainment level in 1980 of less than ten years of schooling. No other southern state contained as large a percentage of counties characterized by low educational attainment levels as did Kentucky. Extensive regional disparities were found in Kentucky but not in other southern states. Therefore, Kentucky's unique position in the southern region is demonstrated not only by its large percentage of low educational attainment counties but by the regional dichotomy of educational attainment levels in Kentucky as well.

Notes

[1]*Education and Economic Development*. A report prepared by the Center for Business and Economic Research, University of Kentucky on behalf of the [Kentucky] Governor's Office of Policy and Management. Lexington, Ky. Forthcoming, 1986.

[2]The states defined as southern for purposes of the CBER study were: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Tennessee, Virginia, and West Virginia.

[3]The source for the educational attainment data was Bureau of the Census, U.S. Department of Commerce. *1980 Census of Population*. Volume 1, Chapter C. *General Social and Economic Characteristics*. Separate publications for each of the states considered. Washington, D.C.: U.S. Government Printing Office, 1984.

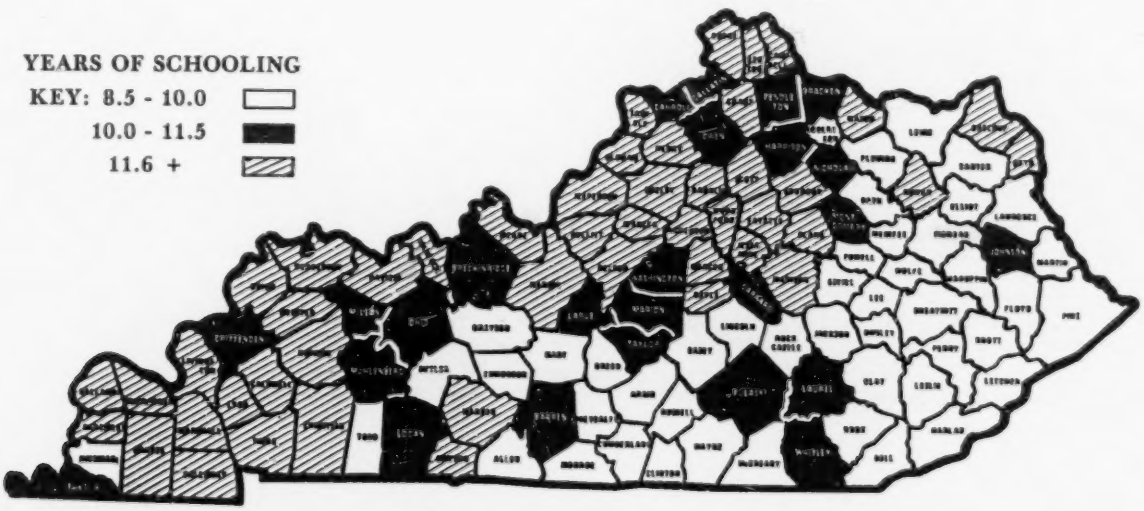
County-level data was used for purposes of this analysis to be consistent with other portions of the CBER study containing analysis at the county level.

(Continued on page 15)

FIGURE 1

MEDIAN EDUCATIONAL ATTAINMENT OF POPULATION

25 OR OLDER IN 1980



selected indicators OF ECONOMIC ACTIVITY

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	Jan. 1986	Feb. 1986	March 1986	Qtr. I 1986	% Chg. 85-IV 86-I	% Chg. 85-I 86-I
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ALL ITEMS (NEW DEF)	328.40	327.50	326.00	327.30	0.25	3.11
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, FOOD AND BEVERAGES	307.90	307.70	307.80	307.80	1.28	2.34
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, HOUSING (INCL RENTAL EQUIV)	356.80	356.50	357.00	356.77	0.48	3.88
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, APPAREL AND UPKEEP	205.00	204.10	206.30	205.13	-2.52	1.40
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, TRANSPORTATION	323.90	319.20	309.60	317.57	-1.59	0.74
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, MEDICAL	418.20	422.30	425.80	422.10	2.27	7.19
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ENTERTAINMENT	270.80	272.00	271.90	271.57	1.12	3.85
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, OTHER	339.10	340.30	341.10	340.17	1.37	6.22
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, SPECIAL INDEX: ENERGY	424.70	408.90	381.30	404.97	-4.99	-2.22
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL COMMODITIES	309.00	304.70	300.30	304.67	-1.48	-1.42
PRODUCER PRICE INDEX, ALL FINISHED GOODS	296.20	292.30	288.10	292.20	-1.33	-0.02
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	294.10	288.90	283.50	288.83	-1.78	-0.56
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	317.20	313.50	309.90	313.53	-1.18	-1.69
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	297.00	296.50	296.40	296.63	-0.38	-1.24
PRODUCER PRICE INDEX, CRUDE MATERIALS	301.30	290.50	280.90	290.90	-3.82	-8.07
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	231.40	226.90	224.00	227.43	-2.24	-8.24
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, SPOT(1967=100)	434.80	428.60	429.60	431.00	-0.22	-2.51
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, CONTRACT(JUNE76=100)	152.30	151.10	151.30	151.57	-0.48	-1.62
PRODUCER PRICE INDEX, ALL CONSTRUCTION MATERIALS	307.40	306.90	307.90	307.4	-0.67	-0.32
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	26.00	24.99	25.00	25.33	-3.39	-6.58
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	58.96	58.73	58.13	58.60	-2.07	-5.17
AVG PRICE FOR ELECTRICITY, PER 500 KWH	40.22	40.85	40.66	40.58	1.65	3.70
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	1.13	1.01	0.94	1.02	-7.69	-5.24
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.19	1.12	0.98	1.10	-8.61	-3.97
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.11	1.03	0.89	1.01	-9.75	-4.32
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.19	1.12	0.98	1.10	-8.98	-4.16
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.34	1.28	1.16	1.26	-6.14	-3.23
LABOR FORCE (SEASONALLY ADJUSTED, MILLIONS OF PERSONS)						
LABOR FORCE, TOTAL (INCL RES ARMED FORCES)	118.48	118.78	118.90	118.72	0.73	1.71
LABOR FORCE, CIVILIAN (EXCL RES ARMED FORCES)	116.79	117.09	117.21	117.03	0.75	1.74
EMPLOYMENT, RESIDENT ARMED FORCES	1.69	1.69	1.69	1.69	-0.53	-0.51
EMPLOYMENT, TOTAL CIVILIAN	108.95	108.56	108.79	108.77	0.71	2.02
EMPLOYMENT, AGRICULTURE	3.30	3.10	3.28	3.23	4.33	-2.79
EMPLOYMENT, NONAGRICULTURAL	105.65	105.46	105.50	105.54	0.61	2.17
UNEMPLOYED, CIVILIAN, TOTAL	7.83	8.53	8.42	8.26	1.19	-1.75
UNEMPLOYMENT RATE, TOTAL LABOR FORCE	6.60	7.20	7.10	6.96	0.46	-3.40
UNEMPLOYMENT RATE, CIVILIAN LABOR FORCE	6.71	7.28	7.18	7.06	0.44	-3.43
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT (B $) (% CHG, ANNUAL RATE)	NA	NA	NA	4116.76	5.80	5.08
U.S. REAL GROSS NATIONAL PRODUCT (B 72$) (% CHG, ANNUAL RATE)	NA	NA	NA	3619.20	3.20	2.01
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B $)(% CHG, ANNUAL RATE)	3386.50	3400.60	3406.50	3397.90	5.30	4.84
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	174.10	175.70	176.60	175.47	1.90	5.01
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1977=100)	126.70	125.70	124.90	125.77	0.29	1.62
AVERAGE PRIME RATE CHARGED BY BANKS ON SHORT-TERM BUSINESS LOANS	9.50	9.50	9.10	9.37	-1.40	-11.10
INTEREST RATE. YIELD ON 3-MONTH TREASURY BILLS	7.04	7.03	6.59	6.89	-3.64	-15.85
PRIVATE HOUSING UNITS AUTH. 17000 PERMIT-ISSUING PLACES (SADJ THOU)	1907.00	1803.00	1856.00	1855.33	29.00	11.32
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B $)	550.70	543.46	545.61	545.61	-0.78	16.07

KENTUCKY DATA

	Jan. 1986	Feb. 1986	March 1986	Qtr. I 1986	% Chg. 85-IV 86-I	% Chg. 85-I 86-I
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1670.20	1669.80	1652.70	1664.23	-2.85	-1.22
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1475.50	1459.60	1466.10	1467.07	-5.93	-1.83
EMPLOYMENT, AGRICULTURAL	44.60	47.20	51.90	47.90	-28.93	0.98
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1430.90	1412.40	1414.20	1419.17	-4.89	-1.92
UNEMPLOYMENT RATE	11.70	12.60	11.30	11.85	32.20	4.85
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1248.60	1247.20	1257.20	1251.00	-1.34	2.82
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	38.20	39.10	38.70	38.67	2.65	4.41
EMPLOYMENT, CONTRACT CONSTRUCTION	55.30	53.80	58.30	55.80	-7.97	26.44
EMPLOYMENT, TOTAL MANUFACTURING	251.90	252.10	252.00	252.00	-0.74	-1.69
EMPLOYMENT, MANUFACTURING, DURABLE	134.30	136.40	136.30	135.67	-1.17	-3.16
EMPLOYMENT, MANUFACTURING, NON-DURABLE	117.60	115.70	115.70	116.33	-0.23	0.09
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	66.70	66.40	66.70	66.60	-1.24	3.04
EMPLOYMENT, WHOLESALE & RETAIL TRADE	298.80	295.00	296.10	296.63	-1.98	4.01
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	59.00	59.20	59.80	59.33	1.42	7.42
EMPLOYMENT, SERVICES (SIC 70-80)	246.40	246.90	250.00	247.77	-1.13	4.07
EMPLOYMENT, CIVILIAN GOVERNMENT	227.10	229.60	230.40	229.03	-0.74	-0.71
EMPLOYMENT, STATE & LOCAL GOVERNMENT	187.00	189.70	190.50	189.07	-0.67	-0.67
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	39.00	37.70	39.40	38.70	-2.19	0.78
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	39.80	38.90	40.40	39.70	-1.08	1.28
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	38.20	36.40	38.20	37.60	-3.34	0.53
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	9.54	9.67	9.76	9.66	0.35	2.40
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	10.25	10.26	10.51	10.34	0.94	2.44
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	8.72	8.93	8.83	8.83	-0.45	2.64
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	372.06	364.56	384.54	373.72	-1.85	3.22
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	407.95	399.11	424.60	410.55	-0.14	3.77
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	333.10	325.05	337.31	331.83	-3.79	3.18
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	10.57	10.31	10.94	31.82	1.56	25.93
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	3.30	3.22	3.48	10.01	2.43	5.07
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	16.51	15.95	16.02	16.16	4.57	7.47
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	488.70	462.55	454.97	469.74	4.68	-17.73
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	29.60	29.00	28.40	29.00	0.00	-23.35
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	15.79	16.75	15.34	47.89	*	13.53
HOUSING (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	131.40	140.00	149.70	421.10	-19.05	4.23
HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTHORIZED, 1 UNIT	514.00	360.00	660.00	1534.00	14.73	45.40
VALUATION, HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTH, 1 UNIT	26.67	21.38	38.13	86.18	13.38	41.15
HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTHORIZED, TOTAL	850.00	479.00	894.00	2223.00	-35.23	-15.76
VALUATION, HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTH, TOTAL	37.33	23.65	44.88	105.86	-12.99	19.21
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	99.64	78.24	72.72	250.60	*	7.70
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	10.46	7.93	9.12	27.51	*	3.96
SELECTED STATE GOVERNMENT RECEIPTS						
TAX & NONTAX RECEIPTS, GENERAL FUND, TOTAL	281.18	216.68	171.92	669.78	*	6.91
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	93.47	62.00	57.17	212.63	*	7.55
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	78.03	87.58	42.64	208.25	*	7.74
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	8.86	5.47	9.55	23.88	*	1.22
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	34.95	37.00	33.30	105.25	*	3.63
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	14.92	15.99	12.90	43.81	*	7.47
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	13.20	10.56	12.06	35.82	*	0.21

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY), VALUE OF CONSTRUCTION CONTRACTS;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 17,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

Human Capital and the University of Kentucky Medical Center

by Carol M. Straus*

Introduction

Human capital is the productive power of people. Because this productive power is affected by factors such as health and knowledge, enhancing human capital is an important aspect of the economic impact of educational and health care organizations. The following article on the human capital impacts of the University of Kentucky Medical Center (UKMC) for Kentucky is based on the results of a larger study of the social and economic impacts of the UKMC.[1] We begin with an introductory discussion of the concept of human capital and its relation to the UKMC.

The concept of human capital is most easily defined through analogy to physical capital. The classic example of a physical capital investment is the purchase of a machine. Typically, the initial cost of a machine is far greater than the value of the services that the machine can provide in the immediate future. The return on the investment is long-term, and occurs through increased levels of productivity over the life of the machine. Maintaining this level of productivity requires investments to repair and eventually replace the machine. Increasing productivity would require investing in more or better or faster machines.

Investments in human capital that maintain or increase the productive potential of people also are important for the continuation or expansion of an economic system. Our hypothetical machine would not exist without people who can design and manufacture machines and would be worthless without people who can operate or repair it. Education and health care are both important kinds of investments in human capital, for the capacity to produce depends upon knowledge and health. For example, health care to cure or control a problem that is interferring with a worker's job performance may be viewed as a human capital investment with an immediate and obvious return in terms of increased productivity. Training for a specific work task may be similarly viewed. Preventive health care and public education for children are human capital investments that enhance lifetime productive potential.

Frequently, public expenditures for services such as education or health care are viewed as social expenditures which primarily benefit the recipients of the educational or health care services. However, in addition to generating economic activity, such expenditures often generate an economic impact through enhancing human capital. As with other education, medical education increases the overall productive power of a population through increasing the knowledge and skills of some or all of its members. Through creating a pool of health care professionals, medical education also increases the accessibility of health care to the entire population, as do the health care services provided directly by a medical center. Also, research contributes to knowledge about health and effective health care, which contributes to the health of a population. Greater knowledge and better health increase the productive potential, or human capital, of a population.

Kentucky's public support for the UKMC is an investment in Kentucky's human capital. It is also an investment in Kentucky's economy, for human capital is important for the maintenance or expansion of the economy. Virtually all health care and educational institutions have implications for human capital, and so our analysis of the human capital impacts of the UKMC is in one sense a case study of the human capital impacts of health care and educational institutions in general. Additionally, the specific aspects and characteristics of the UKMC strongly influence its particular human capital impacts, and these are stressed in the analysis.

The UKMC was created, designed, and supported to fulfill specific responsibilities and to have a range of social impacts on Kentuckians throughout the state. These responsibilities included training health care personnel to serve Kentucky, providing educational opportunities for Kentucky's youth, helping practicing professionals keep up with their fields, facilitating research, enhancing the quality of medical care, and prior to Medicare and Medicaid, providing medical care for some of the indigent. While the UKMC's 25-year history includes almost continual change and considerable expansion, many of its current programs and activities are rooted in its origin as an institution created to address social needs. To a large extent, the social and economic impacts of the UKMC overlap, for very often an effect of meeting human need is enhancing human capital.

As background for the analysis of the human capital impacts of the UKMC, a basic understanding of the organizational and financial structure of the UKMC is important. The UKMC is one of three sectors of the University of Kentucky. In addition to the Colleges of Allied Health Professions, Dentistry, Medicine, Nursing, and Pharmacy, it includes a medical library, the clinical facilities of the University Hospital and Ambulatory Medical Services, and several centers and units which focus on specific health care concerns or populations. It also has many geographically dispersed affiliations with other health care organizations.

Through its five colleges, the UKMC offers undergraduate, graduate, professional and residency programs which serve about 2,000 students annually, of whom 90 percent are Kentuckians. In addition to preparing students for careers in health care professions, each college offers continuing education programs that serve a wide and varied audience of health care personnel. In addition to its 470 member regular faculty, a large and geographically dispersed voluntary faculty supports the activities of the UKMC.

As part of Kentucky's public higher education system, the UKMC is partially supported by funds appropriated by the

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Kentucky legislature. For the 1983-84 fiscal year, an appropriation of $43.2 million accounted for 28.1 percent of total UKMC revenue. To understand the role of state funding in the financial structure of the UKMC, it is helpful to consider the more academically oriented colleges and central administration as a fiscal entity and the University Hospital as another.[2] For the 1983-84 fiscal year, appropriated funds accounted for 49.7 percent of the Colleges and Administration's revenue and 9.5 percent of the University Hospital's revenue (see Table 1). As with most of the UKMC's state appropriation, funds appropriated for the University Hospital are to support teaching activities. Payments to the hospital for patient care services accounted for most (88.1 percent) of total hospital revenue and the largest (42.9 percent) category of total UKMC revenue.[3] Other significant sources of revenue include student tuition and fees, physicians' and dentists' services, grants and contracts for research and service, and private gifts. Although the generation of economic activity is not a focus of this article, it is noteworthy that funds appropriated by the Kentucky legislature specifically for the UKMC account for less than one third of its total revenue.

TABLE 1
UNIVERSITY OF KENTUCKY MEDICAL CENTER (UKMC) REVENUE FISCAL YEAR 1983-84

UKMC Unit	Million Dollars	Percent
College and Administration	$ 66.4	100.0%
State Appropriation	33.0	49.7
Other[1]	33.4	50.3
University Hospital	74.9	100.0
State Appropriation	7.1	9.5
Patient Services	66.0	88.1
Other	1.8	2.4
Total UKMC[2]	153.9	100.0
State Appropriation	43.2	28.1
Hospital Patient Services	66.0	42.9
Other	44.7	29.0

State Appropriation		
Total UKMC	$ 43.2	100.0%
Colleges and Administration	33.0	76.4
University Hospital	7.1	16.4
Debt Service	3.0	7.0

Source: University of Kentucky Medical Center, unpublished financial records.

Notes

[1]Other revenue sources for the Colleges and Administration include student tuition and fees, physicians' and dentists' services, grant and contracts for research and services, and private gifts.

[2]Revenue for the UKMC which is not accounted for by the Colleges and Administration and the University Hospital totals $12.6 million, most of which is either appropriated funds for debt service or Kentucky Medical Services Foundation (KMSF) revenue which is not transferred to the Colleges and Administration. KMSF is responsible for billings and collections for physicians' services.

Recognizing that there is considerable overlap between and among the various programs and activities of the UKMC, our analysis of the human capital impacts of the UKMC is organized around the basic activity categories of teaching, service, and research. The primary human capital impacts for Kentucky are the result of training professionals, providing health care services, and developing knowledge about the health care problems of Kentuckians.

Health Care Professionals For Kentucky

Public support for medical education is a long-term investment for developing and maintaining Kentucky's health care labor force, for there are periods of a few years to over a decade between the times that students begin educational programs and the times that they are ready to enter health professions. Also, subsidized education by itself may be insufficient for maintaining or strengthening Kentucky's health care labor force. Graduates choose whether or not they will remain in Kentucky at all and whether or not they will practice in areas of Kentucky with strong needs for additional health care professionals. There are many reasons why they may choose otherwise.

Areas with greatest needs for additional health care professionals are frequently those with the least financial resources for supporting health care facilities. Health care professionals who do locate in high need areas may leave after a few years for reasons such as stress from working without colleagues who can share off-hour emergency work, lack of career opportunities for spouses or educational opportunities for children, or difficulties in keeping up with advances in their professions in an isolated setting. Also, most physicians spend three to seven years in residency programs and may have additional military or other obligations to fulfill before they begin independent careers, and during these years may establish family or professional ties in areas outside Kentucky.

In order to encourage its students to choose careers in Kentucky and especially in rural areas where health manpower shortages persist, the education programs of the UKMC share an emphasis on experience in varied health care settings. Supervised work experiences in a variety of health care settings are vital components of virtually all students' educations, and many such experiences occur in communities and rural areas where the needs for additional health care providers are greatest. In several programs, including medicine and dentistry, there are special efforts to draw students from rural areas despite the limited pre-college educational opportunities that characterize such areas.

There is ample evidence that the combination of public support for health care education, strategic recruitment and admissions of students, and geographically dispersed educational experiences are effective for building and maintaining Kentucky's health care work force. An estimated 80 to 90 percent of the College of Pharmacy's graduates remain in Kentucky, as do over 70 percent of Allied Health graduates and most graduates of the College of Nursing. Most College of Medicine graduates leave Kentucky, at least temporarily, in order to complete their training in residency programs. Still, 770 of the College's 1,860 graduates are known to be practicing in Kentucky.

The effect of the UKMC on the distribution of dentists and primary care physicians in Kentucky is illustrated by Table 2, which shows the numbers, by Area Development District (ADD), of all College of Dentistry alumni and those College of Medicine alumni who are primary care specialists and are practicing in Kentucky. Concentrations in the state's more populous areas are, to a significant degree, balanced by substantial numbers in some of the state's less populous areas, especially in the eastern half of Kentucky (Area Development Districts 8-15).

TABLE 2
DENTISTRY AND MEDICINE UKMC ALUMNI PRACTICING IN KENTUCKY

Area Development Districts	Dentistry	Medicine*	Population 1984 (thousands)
1 Purchase	29	12	178
2 Pennyrile	14	19	201
3 Green River	25	17	203
4 Barren River	18	11	233
5 Lincoln Trail	14	11	221
6 KIPDA	59	38	807
7 Northern Kentucky	48	23	317
8 Buffalo Trace	9	6	54
9 Gateway	10	8	67
10 FIVCO	25	12	141
11 Big Sandy	33	15	188
12 Kentucky River	26	12	137
13 Cumberland Valley	32	22	234
14 Lake Cumberland	19	19	178
15 Bluegrass	177	130	563

*Tabulation is for only those UKMC College of Medicine alumni who have completed residency training and are practicing primary care specialties. Primary care specialties include family practice, internal medicine, pediatrics, obstetrics and gynecology, and preventive medicine.

Sources: University of Kentucky Medical Center, College of Dentistry and Medicine, unpublished alumni records; 1984 population estimates are from Urban Studies Center, University of Louisville, through the Kentucky Economic Information System.

Significant numbers of alumni are practicing in largely rural counties with small populations, where small population is defined as 30 thousand or less. At the county level, College of Dentistry alumni are practicing in 57 of 63 eastern counties, and in 42 of the 48 counties with small populations. Of the 57 western counties (Area Development Districts 1-7), College of Dentistry graduates are practicing in 37, and also in 24 of the 42 small population counties. Also of note is that nearly half (49 percent) of the dentists practicing in the mountainous eastern and southeastern portions of Kentucky are College of Dentistry alumni. There are College of Medicine alumni in 50 of 63 eastern counties and in 36 of the 48 small population counties. In the western part of the state, they are in 35 of 57 counties, and in 20 of the 42 counties with small populations.

In sum, the educational programs of the UKMC contribute significantly to the size and distribution of Kentucky's health care labor force through influencing its geographic distribution as well as its composition. UKMC alumni, in turn, contribute to the health of Kentuckians and the productivity of Kentucky's labor force.

Health Care Services For Kentuckians

The importance of the health care services offered through the UKMC derives more from the kinds of services it offers and the geographic area it serves than from the amount of patient care it directly provides. As a provider of a comprehensive range of highly specialized health care services, it is the only source of many kinds of health care in the eastern half of Kentucky, and the only source of some kinds of health care in all of Kentucky. These health care services are supported by the UKMC's clinical faculty and are often interrelated with its teaching and research programs.

During the 1983-84 fiscal year, there were over 130,000 patient visits to various UKMC clinics. A large proportion of these visits were to one of over 90 specialty clinics and from patients with complex or multiple problems. An indication of the amount of complex health care provided in UKMC clinics is that nearly one in ten patient visits involves referrals of UKMC patients to new subspecialties.

University Hospital has a very high concentration of patients with particulary serious or complex health problems who have been referred from other health care facilities. Nearly a quarter of its patient-days involve one of ten specialty intensive care units. A majority of obstetric patients are at high risk, and a large number of births are premature. Nearly two-thirds of patients discharged have at least two diagnosed medical problems, and a fourth have at least four.

The geographic distribution of patients is such that the majority live some distance from the UKMC. A large proportion of patients are from eastern Kentucky, with special diagnostic and treatment needs that cannot be met at other hospitals in the region (see Table 3). Examples of such needs

TABLE 3
UKMC UNIVERSITY HOSPITAL PATIENTS GEOGRAPHIC PROFILE
1983-84

Service Area	Number of Patients	Percent of Total Patients	Patients Per 1000 Population
Primary Service Area			
Bluegrass ADD*			
Fayette County	4,152	26.9%	19.99
Other Counties	3,397	22.0	9.77
Subtotal	7,549	48.9	13.59
Secondary Service Area			
Buffalo Trace ADD	340	2.2	6.25
Gateway ADD	652	4.2	9.76
FIVCO ADD	473	3.1	3.37
Big Sandy ADD	1,156	7.5	6.25
Kentucky River ADD	1,453	9.4	10.74
Cumberland Valley ADD	1,697	11.0	7.33
Lake Cumberland ADD	1,016	6.6	5.86
Subtotal	6,687	44.2	6.77
Other			
West Kentucky ADDs	557	3.6	0.26
Out of State	556	3.6	—
Total	15,499	100%	—

*Area Development District.

Sources: UKMC University Hospital, Medical Records Department, unpublished annual statistics; population estimates are from Urban Studies Center, University of Louisville, through the Kentucky Economic Information System.

TABLE 4

UKMC CONTRACTUAL AFFILIATIONS BY AREA DEVELOPMENT DISTRICT

Area Development District	Degree Programs					
	Allied Health	Dentistry	Medicine	Nursing	Pharmacy	Medical Residencies
1 Purchase	4	8	1			1
2 Pennyrile	3	1	4	4		
3 Green River	7	5	2	1	5	
4 Barren River	3	3		3		
5 Lincoln Trail	2	4	4	3		
6 KIPDA	9	2	1	2	16	
7 Northern Kentucky	3	4	3	2		1
8 Buffalo Trace	2	2	1	3	2	
9 Gateway	7	2	2	6	3	2
10 FIVCO	3	1	2	4		1
11 Big Sandy	3	5	2	11		
12 Kentucky River		5	1	12		
13 Cumberland Valley	4	7	2	3	7	4
14 Lake Cumberland		5	2		7	
15 Bluegrass						
Fayette County	20	18	1	75	12	8
Other Counties	6	7	11	19	2	2

Source: University of Kentucky Medical Center, Office of the Vice Chancellor for Clinical and Professional Services, unpublished records.

include kidney, bone marrow, and corneal transplants and neonatology care for extremely premature infants.

In addition to educating students and providing services at its Lexington campus, the UKMC maintains affiliations with many other institutions. Through these affiliations, students gain experience in a variety of health care settings and are introduced to specific facilities and areas in which additional health care professionals are needed. Also, patients are able to receive specialized health care near their homes.

Table 4 illustrates the geographic range of UKMC affiliations. It includes most areas of the state with affiliated organizations concentrated near the UKMC campus and throughout eastern Kentucky. The table is constructed from records of formal contracts. Because some contracts are with central offices of organizations with multiple locations, and many associations are informal, the information should be interpreted as an indication of the geographic range of the UKMC's activities rather than the amount of activity in any given area. Some of these contracts involve arrangements for students to work under the supervision of volunteer faculty, while others involve the provision of specialized health care services in areas that could not support full time practitioners for such services.

Through local facilities that serve a geographically dispersed patient population and activities and affiliations in many different places, the UKMC provides health care services to much of Kentucky and especially to the eastern half of Kentucky.

Research For Kentucky's Health Problems

Activities and programs that are particularly important to Kentucky and its human capital include research that focuses on health problems that are prevalent in Kentucky and health care services that are unavailable from other sources. Although virtually all UKMC research and service has a human capital component, our analysis focuses on selected examples that illustrate relationships between research and human capital.

Despite dramatic reductions in tuberculosis at the national level, this disease and other pulmonary problems are prevalent in Kentucky, where children are a high incidence group. Current UKMC research projects involve the development of more accurate diagnostic and more effective treatment techniques for tuberculosis and several fungal pulmonary diseases. Researchers in the Department of Pediatrics are working to develop a more reliable skin test for tuberculosis, and a multidisciplinary team of pediatricians and radiologists are studying radiological manifestations of various chronic lung diseases which have similar symptoms but respond to different treatments. Treatment programs include a cooperative effort between the Department of Pediatrics and Kentucky's Department of Vocational Rehabilitation to restore capacities for work in patients with chronic conditions.

These related projects illustrate two important kinds of human capital investment--the creation of medical knowledge about health problems of particular importance for Kentucky, and treatment of health problems before they diminish the productivity of tomorrow's workforce. Similarly, prenatal and obstetric care, particularly for high risk mothers, and virtually all pediatric medical and dental health care and research that contribute to the prevention, early detection, accurate diagnosis, and effective treatment of childhood health problems before they diminish adult productivity are investments in human capital.

Occupational health is a particularly important human capital issue because diseases and disabilities associated with particular occupations shorten work lives and threaten the productivity of workers who are already trained and experienced. Coal mining and agriculture are industries with large numbers of Kentucky employees and high work-related health risks, and they are the focus of several UKMC research efforts. These include research on the potential health effects of coal liquification that combines data gathering with occupational health services. Research related to the tobacco industry

focuses on agricultural equipment accidents and exposure to nicotine and pesticides. Other areas of occupational health research include environmental cancer, cardiovascular diseases, and health effects of video-display terminals.

Nurses-Assisting-Nurses (NAN) is an innovative program of the UKMC's College of Nursing which addresses problems of emotional stress and substance abuse among registered nurses. While researching these occupational hazards, which plague health professions in general, this program offers participants concrete assistance in the form of a 24-hour crisis line, counseling, and employment assistance. By helping individuals solve their health- and work-threatening problems, Nurses-Assisting-Nurses helps maintain and strengthen Kentucky's nursing work force.

Efforts to diminish the debilitating effects of aging are investments in human capital because of their potential for helping people maintain productivity for longer periods of time. Through the University of Kentucky's Multidisciplinary Center for Gerontology and the Sanders-Brown Research Center on Aging, the UKMC conducts numerous educational, research, and service programs that focus on the process and problems of aging. Because diseases and health problems associated with advanced age most frequently affect people who are beyond working-age, much of the benefit of this work is more social than economic. However, health problems that usually affect the elderly also affect significant numbers of pre-retirement age persons and are frequent causes of shortened work lives.

Programs for cancer research and treatment are extensive and include one of the nation's 12 bone marrow transplant programs. These programs are enhanced by the new Markey Cancer Center, which was built entirely with private funds. An adjoining research facility, under construction, will facilitate research. A statewide information system is being developed by the McDowell Cancer Network. It will serve physicians throughout Kentucky by disseminating clinical information on cancer patients.

The UKMC is a leader in developing patient controlled analgesia, an alternative to traditional methods of pain relief following major surgery that can aid recovery through increased patient comfort and reduced levels of medication. The Facial Pain Center of the College of Dentistry also addresses the debilitating effects of pain. It draws on the skills of dentists, physicians and physical therapists to diagnose and treat facial pain and jaw dysfunction, and serves patients from surrounding states as well as all of Kentucky.

These and other research efforts contribute to Kentucky's human capital through increasing knowledge about the health problems of Kentuckians. Additionally, many of these efforts are interrelated with patient care services that continually incorporate research findings into health care delivery and the education of Kentucky's health care labor force.

Conclusion

Our analysis suggests that the human capital impact of the UKMC is significant and geographically widespread. It is particularly significant for the eastern half of Kentucky, but its impact is present in varying degrees throughout Kentucky. While programs and activities are frequently interrelated and have multiple impacts, it is possible to distinguish three major kinds of human capital impact of the UKMC. First, through educational programs that serve mainly Kentuckians and include exposure to areas of need, the UKMC significantly contributes to the size and distribution of Kentucky's health care labor force. Second, it is a primary source of many kinds of highly specialized health care for the eastern half of Kentucky. Third, it contributes to knowledge about the nature and treatment of health problems that are particularly prevalent in Kentucky.

Notes

[1]The research was conducted by the Center for Business and Economic Research under contract to the University of Kentucky Medical Center. The full report is *The University of Kentucky Medical Center: Social and Economic Impacts*, by Carol M. Straus, Richard W. Furst, Merl M. Hackbart, L. Randolph McGee, and Sheryl Bateman (Lexington, Kentucky: Center for Business and Economic Research), 1986.

[2]University Hospital included both inpatient and outpatient services during the 1983-84 fiscal year, which is the time period for data used in this study. With the opening of the Warren Wright Medical Plaza in 1984, Ambulatory Medical Services was established as an administrative entity for outpatient services.

[3]It should be noted that the categories of appropriated and nonappropriated sources of revenue are not equivalent to public sector and private sector sources of funds. The UKMC receives public funds other than those appropriated by the state legislature specifically for the UKMC. For example, many research projects are supported by government grants, especially from the federal government. These funds are appropriated for research and awarded to UKMC on a competitive basis. Also, health care costs for many of the UKMC's patients are covered by Medicare and Medicaid, with the state paying for a portion of Medicaid charges. However, the UKMC does not receive public funds through appropriation or other sources to cover the substantial costs of health care for patients who do not qualify for Medicaid or Medicare or for health care that is not covered by these programs for patients who are unable to pay.

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In addition to the above, each issue since Vol. 2, No. 2, has included a "News & Notes" column and since Vol. 2, No. 3, a two-page display of "Selected Indicators of Economic Activity" for the U.S. and for Kentucky.

(Continued from page 5)

There has been a slight increase, 1.9 percent, in total nonagricultural wage and salary employment over the period. There has been substantial decline in employment in the goods-producing industries, but rather significant increase in employment in some of the services-producing industries. The overall rate of increase in the services-producing sectors was not, as can be seen, as great as the rate of decline in the goods-producing industries. However, the data indicate that Kentucky employment in government has been fairly stable over the period. Excluding government employment from the services-producing group (to focus more effectively on private sector changes) results in an overall growth of 15.9 percent for the services-producing industries and a 2.3 percent overall change in private sector nonagricultural wage and salary employment.

Goods-producing employment tends to be more volatile than services-producing employment. Goods-producing firms, especially manufacturing firms, enter or leave regions for a variety of reasons. They are not necessarily affected by local demand but they may be affected by changes in technology, foreign commodity prices, and the dollar exchange rates abroad. Employment in goods-producing industries generally stimulates employment in the services-producing industries. Had Kentucky's goods-producing industries not suffered so steep a net decline in recent years, services-related employment would probably have grown more rapidly than it did. Hence anticipated improvement for the goods-producing sectors in the U.S. and in Kentucky may portend more rapid future growth in employment in Kentucky's services-producing sectors as well.

Notes

[1]For a more complete assessment of the Kentucky and national economies over the last decade and a half, see Don M. Soule, "An Economic and Governmental Finance Profile of Kentucky." *Commonwealth of Kentucky Annual Economic Report—1985* (Lexington, Kentucky: Center for Business and Economic Research, 1986), p. 17.

[2]See also, Susan Elizabeth Shank, "Changes in Regional Unemployment Over the Last Decade." *Monthly Labor Review*, Volume 108, Number 3, March 1985, pp. 17-23.

[3]For a discussion of the methodology employed in estimating monthly levels of unemployment, etc., see any issue of *Employment and Earnings* issued by the Bureau of Labor Statistics, U.S. Department of Labor.

[4]Soule, pp. 29-33.

[5]Soule, pp. 7-13.

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[4]S.A. Rosenfeld, E.M. Bergman, and S. Rubin. *After the Factories: Changing Employment Patterns in the Rural South*. (Research Triangle Park, N.C.: Southern Growth Policies Board, December 1985), p. 33.

[5]The Kentucky counties defined as metropolitan by the U.S. Office of Management and Budget include: Boone, Bourbon, Boyd, Bullitt, Campbell, Carter, Christian, Clark, Daviess, Fayette, Greenup Henderson, Jefferson, Jessamine, Kenton, Oldham, Scott, Shelby, and Woodford. Carter County was defined as a metropolitan county following the 1980 census. Closer similarities to traditional metropolitan counties may need more time to develop. This might account for the divergence in Carter County's level of educational attainment.

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1982. All Gross National Product (GNP)-related series have been revised from 1973, while constant-dollar series and price indexes have been revised from 1929 (and hence in the database back to its starting date, 1951), to reflect the shift in the base period of the indexes from 1972 to 1982. Comparable revisions in state-level income data will be incorporated in the annual series due for release in September 1986, and in county-level income data due for release in Spring, 1987.

BEA recently released county-level estimates through 1984 (and revisions for 1981-83) for the sources of personal income, disaggregated by industry; on the number of full- and part-time jobs, by industry; disaggregations of transfer payments, by program; and detail on farm income and expenditures. All of these data are now accessible through the KEIS. Users should note that BEA's data on employment (jobs), by industry, now include data for proprietors, as well as all wage and salary jobs. They are thus not comparable to previous industry-level employment data; for this reason, the relevant CBANK series, item #s 110-132, and related series (item #s 134-139) have been revised for the full period (i.e., 1969-84).

For information concerning access to the KEIS or for any questions regarding the above or other data, please call the KEIS Manager (606) 257-7675.

• • •

The Kentucky Economic Association (KEA) will be holding its twelfth annual meeting on Friday, September 26, 1986. The meeting will be in Lexington at the Springs Inn; the luncheon and distinguished speaker will be Lexington-Fayette County Mayor Scotty Baesler. For further information, please contact the Program Chairman, Professor William Baldwin, Department of Economics, Eastern Kentucky University, Richmond (606) 622-1769 or the KEA President, Professor Frank Spreng, Department of Economics, Brescia College, Owensboro (502) 685-3131.

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Kentucky Economic Review

by Charles F. Haywood*

Employment trends in Kentucky during the past two years have been a source of nagging concern about the future of the state's economy. In the latter part of 1983 and through much of 1984, employment in Kentucky showed good recovery from the 1981-1982 recession. However, employment decreased in Kentucky in most months of 1985 as compared to the same months in 1984, and that unfavorable trend continued through the first half of 1986. Despite some improvement in recent months, total employment in the state remains below its level for the same months in late 1984.

To try to get some idea of what the long-term outlook may be for employment in Kentucky, we have reviewed regional projections made by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce. BEA's projections of employment to the year 2000 make use of population projections by the Bureau of the Census, input-output studies and projections of Gross National Product by the Bureau of Labor Statistics, and extensive work by BEA on industry growth trends on a state-by-state basis.[1] Prior to publication, the projections were reviewed by state agencies participating in the Federal-State Cooperative Program for Population Projections. All this does not mean that the employment projections are reliable indicators of the future; it simply means that the projections are probably the most reliable that can be produced but are subject to the limitations that affect long-term projections in general.

Table 1 compares average annual rates of change in employment by major industry sectors in Kentucky, the Southeast Region, and the U.S. as projected by BEA from the base year 1983 through the year 2000. Growth in total employment in Kentucky is projected to average 1.1 percent per annum, compared to 1.6 percent for the Southeast and 1.5 percent for the United States. The extent to which Kentucky falls below the national average is relatively substantial. At an average annual growth rate of 1.1 percent, employment in Kentucky is projected to be 1,811,000 in the year 2000, compared to 1,502,000 in 1983. However, if employment in Kentucky were projected to increase at the national average of 1.5 percent per annum, the projected level of employment in the year 2000 would be increased to 1,944,000—a difference of 133,000 jobs.

In the important category of durable-goods manufacturing, the pace of growth in Kentucky employment is projected to be the same as the national average. This sector is expected to account for 181,000 jobs in Kentucky in the year 2000, or approximately 10 percent of total employment. The projected increase in number of jobs in this category between 1983 and 2000 is 48,000.

The only sector in Table 1 in which Kentucky is projected to have a faster growth rate than the nation or region is agricultural services, forestry, and fisheries. The effect on total employment, however, is relatively small, with the number of such jobs in Kentucky increasing from 10,000 in 1983 to 22,000 in the year 2000.

Among the lagging sectors, retail trade and services are especially important in their effects on total employment. While employment in Kentucky's retail sector is expected to increase from 234,000 in 1983 to 299,000 in 2000, growth at the national average for this sector would put the Kentucky figure at 315,000—some 16,000 more jobs than projected. In the services sector, the projected increase is from 281,000 to 372,000 in Kentucky, and that gain of 91,000 would represent almost 30 percent of the total increase in employment projected for Kentucky. However, growth at the national average projected would make this sector even more important as such a rate of growth would increase services employment in Kentucky to 413,000—some 41,000 more jobs than projected.

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*Charles F. Haywood is Chief Economist, Center for Business and Economic Research, University of Kentucky. He directs the Center's Economic Analysis and Financial Policy Studies Program. Dr. Haywood is also Professor of Finance, College of Business & Economics, University of Kentucky.

News & Notes

In our Spring column we announced that the Bureau of Economic Analysis (BEA), U.S. Department of Commerce, had completed a major revision of the National Income and Product Accounts (NIPA). Likewise, the various price deflators related to GNP were not only revised, but were rebased to 1982 values (1982 = 100), meaning that all constant dollar values would henceforth be reported in 1982 $s.

BEA has recently revised and released annual estimates of State personal income for 1969-85 that reflect the comprehensive revision of the historic (since 1929) NIPA estimates, incorporate the annual revision of the NIPA estimates for 1983-85, and that also reflect the use of newly available or more current data sources and improved estimating methods for many income components at the State level. The revised Kentucky and national BEA time series 1969-85 are now accessible through the Kentucky Economic Information System (KEIS). They include personal income by source, total earnings by industry, wage and salary earnings by industry, disaggregated transfer payments by program, total employment by place of work, and number of jobs (full and part-time) by industry. The revisions of the State estimates are discussed in an article in the August 1986 issue of *The Survey of Current Business*.

We are currently engaged in analyzing the newly revised data, and are attempting to gauge the effect of the revisions on our understanding of the development of the Kentucky economy during the 1969-85 period. An article discussing our initial findings is scheduled for publication in the Fall 1986 *Review & Perspective*.

Because of the comprehensive nature of the data revisions, the time series are not comparable with those previously released. The unrevised data, 1951-84, will be retained by staff of the Center for Business and Economic Research (CBER) but will no longer be directly accessible through the KEIS. Anyone interested in accessing them should contact the KEIS Manager.

Users of BEA's quarterly state-level estimates or their annual county-level estimates, stored in the KEIS, should note the following. The comprehensive revisions of the State annual income estimates are being extended to the State quarterly estimates and the county-level annual estimates. However, because of the extensive amount of staff effort required, and because the Regional Economic Measurement Division at BEA has had to absorb a reduction in personnel, the revised quarterly State and annual county estimates will be issued in stages. In October 1986, revised State quarterly estimates for the first quarter of 1980 through the second quarter of 1986 will be issued. Comparable revisions for the first quarter of 1969 through 1979 will be issued in July 1987, preliminary 1986 State annual estimates will be issued in April 1987, and routinely revised State annual and quarterly estimates for 1984-86 will be issued in August and October 1987, respectively. Revisions of the annual county estimates will be issued, along with 1985 and 1986 estimates, in Spring 1988.

In other words, the county-level BEA estimates (personal income by source and disaggregated earnings, by industry; disaggregated transfer payments; disaggregated farm income and expenditures; and total employment by place of work, by industry), **now available in the county database of the KEIS**

(Continued on page 6)

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This publication provides current information concerning the Kentucky economy. It is a forum for the publication of short expository articles, analyses of some aspect of the Kentucky economy, forecasts of the Kentucky economy, and tables of selected data chosen as indicators of developments in the Kentucky and national economies. The publication also sometimes includes information about enhancements to the Kentucky Economic Information System (KEIS).

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Can a Governor Determine the Location of Private Industry?

by H. Brinton Milward*

Background

The "Golden Triangle," drawn by the interstates that tie Louisville, Lexington and Cincinnati together, has recently received a great deal of public attention.[1] Bob Johnson reports in his *Courier-Journal* column of May 25, 1986, that he finds resentment among politicians in Western Kentucky toward what is perceived as Governor Collins' tilt toward the "Golden Triangle" when it comes to luring and leading industry to Kentucky. This feeling has been accentuated by Toyota's decision, and that of some other Japanese firms, to locate their facilities within the borders of the "Triangle"—Interstates 64, 75, and 71.

Johnson is probably correct in suggesting that the issue of the "Golden Triangle" will surface and perhaps dominate the 1987 gubernatorial race. Therefore, it seems useful to try to raise the level of public debate regarding an issue that may have a great deal of influence on who is elected governor in 1987 as well as on what economic development policy the state will pursue in the future.

Any Kentucky governor would take credit for a large facility, such as Toyota, moving to the state and creating a significant number of jobs. Governor Collins is no different. Likewise, a governor who does not produce a significant number of jobs will surely be blamed for being incompetent in not luring industry to the state. As Johnson points out in his column, "the jobs issue traditionally dominates campaigns for governor in Kentucky and there's no reason to believe that this won't be the case in 1987." Given that the real and potential accomplishments of politicians are often exaggerated by their supporters and their failures often exaggerated by their opponents, it is useful to look at what we know about how firms make their decisions to locate in one place rather than another.

There is a striking degree of unanimity in the studies of industrial location decision-making by private firms. Paul Peretz has recently reviewed these studies; he found that business decisions on location and investment are primarily determined by such factors as:

1. proximity to markets,
2. transportation,
3. the location of the home of the chief executive officer,
4. raw materials, and
5. low cost nonunionized labor.[2]

The factors are listed roughly in their order of importance. A factor not on Peretz's list, but clearly of great importance with industry that requires skilled workers, is the level of education of the workforce.[3]

According to the studies reviewed by Peretz, the levels and types of taxes play a minor role, and government services and targeted business incentives have virtually no role other than when states engage in a bidding war for industry. The reason that taxes have little or no role in industrial location decisions can be illustrated quite simply. A four percent decrease in the cost of labor is worth more than a forty percent decrease in taxes. Why is this the case? Wages claim a far larger share of a business' cost schedule than taxes do.

These findings suggest that a firm does not necessarily locate where it is most needed—in depressed, rural areas characterized by high unemployment. Firms' decisions are dominated by the economics of the industry. There must be a reasonably skilled and educated workforce. There must be easy access to markets. There must be a reasonable amount of flat land available at a reasonable price. There must be a reasonable level of social and educational amenities for the executives and managers and their families since they also participate in the location decision-making process.

Governors can locate universities, prisons, state offices and other state-run facilities wherever they want as long as the legislature concurs. A governor can choose to favor one part of a state over another as long as it concerns those things which he or she controls. Industry is quite different. There is significant competition among the states for industry, and it is industry, not the governor, who is calling the tune. States become embroiled in heated bidding wars for firms. Is it likely that under these conditions a governor can force an industry to locate where it does not want?

A recent study quotes a recruiter concerning the general preference for urban over rural locations:

> There's not a whole lot of magic in it. Would you locate a multimillion-dollar plant on a two-lane highway so that when one bridge is out, or a hog truck is ahead of your truck, your whole plant is left waiting for materials? The transportation requirement is critical, almost primary . . .
>
> You keep adding the factors. As industry needs change, you find companies are especially sensitive to the proximity of universities, because they certainly want to be in a position to recruit people with skills in engineering, computer science, telecommunications, medical technology, and the list goes on and on.[4]

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The Market for Industry

What all of these studies on industrial location ignore is the context in which firms negotiate with governments. Most studies have assumed that there is one firm negotiating with one government. In reality a firm will identify five or ten different sites that meet their criteria for location. Typically these sites will be located in a number of different states. Once a firm has identified a number of sites which meet their criteria for industrial location, it is a matter of no preference where they locate. Firms are then free to bargain with all of the governments involved to extract the most beneficial package of inducements they can. In the market for industry, states are the buyers and firms are the sellers and there is a serious imbalance between supply and demand.

In a zero-sum game, with one state bidding against another, businesses end up doing what marketing and labor rationales would have dictated they do anyway, and in addition, receive tax and grant benefits from the state or city chosen. Yet, economic development officials often try to deny that they are caught up in a zero-sum game. Before the U.S. Department of the Treasury's proposal on the limitations of Industrial Revenue Bonds (IRBs) was formalized, it was suggested to an economic development official that the costs of IRBs exceeded their benefits and that they simply represented a direct transfer to business. "But what else do I have to offer," he said, "everybody makes these offers."[5] Getting something done or appearing to get something done seems more important politically than the costs or consequences of the actions.

What then can a government do to influence the level and direction of economic development? In the short-run there are four things a state government can do:

1. Utilize salesmanship and selective incentives.
2. Bring labor and industry together in the state so that the business climate is improved.
3. Spend time and effort on small firms and existing firms in the state. Growth and expansion of existing firms is perhaps more important than luring an out-of-state firm. Companies headquartered in Kentucky are less likely to move or close a branch plant if business conditions deteriorate.
4. Invest in maintenance of the state's infrastructure including roads, bridges and highways.

In addition and perhaps most important for the long-run, Kentucky must invest in its educational infrastructure in the same way that it has invested in roads, bridges and parks, if it is to develop both its leading and lagging regions.

The current national economic shift away from manufacturing industries to service-producing industries is commonly understood. What is not commonly understood is that in both sectors there are areas of great opportunity. Most low-skill, low-wage manufacturing will move overseas, if it has not already. Heavy manufacturing that depends on a high-wage but moderately-skilled, modestly-educated work force is also in decline. The low end of the service-producing industries—retail trade and fast food establishments, for example, can provide employment for young people that gives them entry into the work force. But the service-producing and manufacturing industries that Kentucky needs to attract are the ones with higher pay levels. These demand higher skills which in turn demand a more highly educated work force.

Kentucky's central geographic location in the United States and its excellent highway system are attractive to industry. However, to attract the type of industry described above, we need to develop and reconfigure our entire educational system. The reality is that there is no future for those who do not finish high school. The number of high school graduates must be greatly increased, particularly in southeastern Kentucky where the problem is most acute. The quality of high schools in Kentucky is most uneven. Lagging school districts need to be improved without compromising or penalizing high performing school districts.

In Kentucky's higher education system, there must be a sustained commitment to creating one nationally-ranked research institution that in ten or twenty years can be favorably compared to Ohio State University, Indiana University or the University of North Carolina. Economic development depends on transferring knowledge and skills from researchers to entrepreneurs. This cannot be done at a school where basic research in the sciences, engineering and medicine is not done at the research frontier. In no state does innovation, growth and industrial transformation occur without a major research institution. Development of a major research university does not guarantee that economic development will occur, but without it we know it will not. Thus, it is a necessary but not sufficient condition for economic development.

Notes

[1]See also another article in this issue, "Is There a 'Golden Triangle'?," in which we have analyzed county-level data in order to determine, on the basis of statistics, whether or not there is validity to the notion of a "triangle" of counties, as well as a Western "diamond" of counties.

[2]Paul Peretz, "The Market for Industry," *Policy Studies Review*, February 1986, Vol. 5, No. 3, p. 624.

[3]See William D. Gunther, "Site Selection Factors: An Alabama Survey," Working Paper No. 9, College of Commerce and Business Administration, University of Alabama. Also, John Hekman, "What are Businesses Looking For?," *Economic Review* (Federal Reserve Bank of Atlanta), June 1982, pp. 6-31.

[4]MDC Panel on Rural Economic Development, *Shadows in the Sunbelt: Developing the Rural South in an Era of Economic Change*. A report for the Ford Foundation with additional support from R.J. Reynolds Industries, Chapel Hill, NC: MDC, Inc., May 1986, p. 7.

[5]These comments are based on conversations with a colleague of mine in another state.

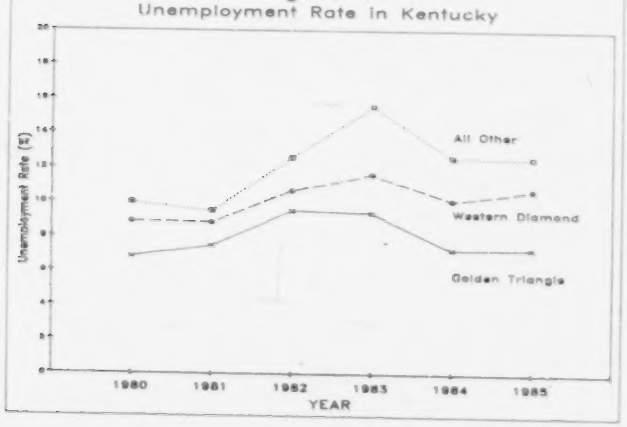
Is There a "Golden Triangle"?

by J. Beth Smith*

The categorization of certain portions of Kentucky into the "Golden Triangle" and the "Western Diamond" appears to be somewhat supported by examining selected measures of economic activity.[1] Since 1980, the annual unemployment rate for the Area Development Districts that constitute the "Triangle" has consistently been below the unemployment rate for the Area Development Districts that constitute the "Diamond" by one to three and one-half percentage points each year (see Figure 1). The unemployment rates from 1980 to 1985 in both the "Triangle" and the "Diamond" have been lower than those for the remainder of the state. It is important to note that the unemployment rate in 1985 for the "Triangle" was 7.3 percent, only slightly higher than its 1980 level of 6.8 percent (see Table 1). However, in the "Diamond" and in the remaining portion of the state, the unemployment rates in 1985 were significantly greater than their 1980 rates.

Likewise, per capita personal income from 1979 to 1984 has been at a consistently higher level in the "Triangle" than in the "Diamond" (see Figure 2). As with the unemployment rate, both the "Diamond" and the "Triangle" performed better than the remainder of the state based on per capita personal income from 1979 to 1984.[2] Specifically, Table 2 shows that per capita personal income in 1984 in the region of the "Triangle" was $12,040; it was $10,070 in the "Diamond." However, the level of per capita personal income for the rest of the state was only $7,830.

Figure 1
Unemployment Rate in Kentucky



The data indicate that the differences in the three areas of Kentucky described above are not new phenomena but have existed for at least the past five to six years. The "Triangle" has consistently demonstrated higher per capita personal income levels as well as lower unemployment rates when compared to the "Diamond" and the rest of the state. In addition, per capita personal income consistently increased from 1979 to 1984 in the "Triangle" whereas the "Diamond" and the rest of the state demonstrated a slight decline in per capita personal income from 1982 to 1983 before continuing its course of slow growth. This was partially in response to the poor performance in the agricultural economy during 1983 both in Kentucky and nationally. The "Triangle" area is less dependent on agriculture than either the "Diamond" or the rest of the state and therefore may have escaped some of the negative impact associated with this agricultural decline. This may also indicate that the economic base of the "Triangle" has been relatively more stable than the other portions of the state.

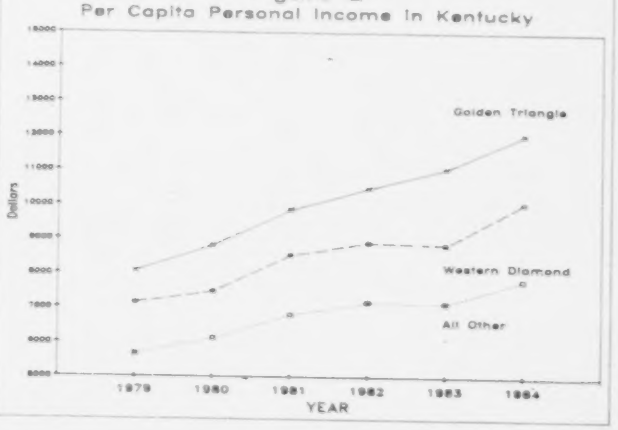
Table 1
Unemployment Rates in Kentucky, By Region

	Golden Triangle	Western Diamond	All Other
1980	6.81%	8.85%	9.97%
1981	7.47	8.78	9.46
1982	9.49	10.66	12.56
1983	9.07	11.91	16.01
1984	7.25	10.09	12.58
1985	7.31	10.72	12.62

Source: County-level unemployment rates are estimated by the Kentucky Cabinet for Human Resources and stored in the Kentucky Economic Information System (KEIS). Calculations of the regional unemployment rates were made within the KEIS.

Note: For a definition of the Area Development Districts that constitute each of the regions above, please refer to the text note accompanying the article.

Figure 2
Per Capita Personal Income in Kentucky



Although both the "Diamond" and the "Triangle" contain approximately the same number of counties, a considerable difference in the population of those counties

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Table 2
Per Capita Personal Income in Kentucky, By Region

	Golden Triangle	Western Diamond	All Other
1979	$ 8,080	$ 7,150	$5,670
1980	8,810	7,480	6,130
1981	9,860	8,540	6,810
1982	10,490	8,890	7,180
1983	11,070	8,840	7,140
1984	12,040	10,070	7,830

Source: County-level per capita personal income values are estimated by the Bureau of Economic Analysis, U.S. Department of Commerce and stored in the KEIS. Calculations of regional per capita personal income values were made within the KEIS.

Note: Same as Table 1.

exists. Specifically, 45 percent of the state's population resided in the "Triangle" each year from 1979-1984 whereas only 22 percent resided in the "Diamond" during the same period. In addition, the percent of the civilian labor force in the "Triangle" has been approximately 50 percent of the state's total labor force compared to 22 percent in the "Diamond" from 1980 to 1985. These factors can play an influential role in a business' locational decision.

While differences exist between the "Diamond" and the "Triangle," the data also indicate these two regions have some similarities. Both regions consistently performed better than the rest of the state when examining unemployment rates and per capita personal income. In addition, the difference in per capita personal income between the "Diamond" and the "Triangle" from 1979 to 1984 has generally been less than the difference between the "Diamond" and the rest of the state. (However, the relative differences between the regions when comparing unemployment rates has not consistently followed this same pattern.)

This brief overview indicates that the categorization of the "Triangle" and the "Diamond" can be supported but it also indicates that there are similarities between the two regions. Therefore, further analysis examining structural differences and/or similarities within the regions, comparing different geographical units or regional breakdowns, and using other measures of economic activity might help explain why some regions of the state have had healthier economies than others and why firms might be inclined to locate in these areas.

Notes

[1]Bob Johnson, in the *Courier-Journal* column referenced by Milward in the previous article, uses the term "Golden Triangle" and reports that Larry Forgy has identified a "Western Kentucky Diamond." For purposes of this analysis, we have defined the "Triangle" as the Kentucky counties in the following Area Development Districts (ADDs): KIPDA ADD (No. 6), Northern Kentucky ADD (No. 7) and Bluegrass ADD (No. 15). This is a somewhat broader geographical area than the border Milward uses to define "Triangle (see p. 3 of this issue). Likewise, we have defined the "Diamond" to include Purchase ADD (No. 1), Pennyrile ADD (No. 2), Green River ADD (No. 3) and Barren River ADD (No. 4). All Other included Lincoln Trail ADD (No. 5), Buffalo Trace ADD (No. 8), Gateway ADD (No. 9), FIVCO ADD (No. 10), Big Sandy ADD (No. 11) and Kentucky River ADD (No. 12). The selected measures of economic activity are the unemployment rate of the civilian labor force and the levels of per capita personal income.

[2]See also the map on page 16 of this issue, "Kentucky Per Capita Personal Income, by County, 1984," which indicates that generally the areas designated in this article as the "Triangle" and the "Diamond" both had higher levels of per capita personal income in 1984 than did the remainder of the state.

News & Notes

(Continued from page 2)

through 1984, will be the most current county-level data until Spring, 1988. This delay gives obvious credence to the claims that the budgetary cutbacks experienced by the federal statistical agencies in recent years are having a dramatic effect on the availability of the basic information needed for analyzing the performance of state and regional economies. State agencies cannot produce comparable estimates.

In Summer 1985 we announced the availability of a new information product issued by BEA and distributed by CBER, "B.E.A. Regional Fact Sheets: BEARFACTS." The fact sheets consist of narratives related to county and metropolitan area personal income estimates and are based upon the annual BEA release of regional economic data. We now have the second annual set of BEARFACTS ready to distribute. One set covers Kentucky counties and metropolitan areas for 1974-84, the second has the same areas for 1983-84. To cover CBER's duplication and mailing expenses, each set costs $10. For further information, contact the KEIS Manager, CBER (606-257-7675).

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Articles in several of the recent issues of *Growth and Change: A Journal of Public, Urban, and Regional Policy*, a quarterly journal published by CBER, may be of interest to readers of *Review & Perspective*. Among these are "The Deductibility of State and Local Taxes: Impact Effects by State and Income Class" by Daniel R. Feenberg and Harvey S. Rosen (April 1986); "Sub-National Foreign Export Development and Its Impact on Productivity" by Charles C. Zech (July 1986); and "How Cities Expand: Does State Law Make a Difference?" by Thomas D. Galloway and John D. Landis (forthcoming, October 1986).

Subscriptions or further information may be obtained by writing to the Managing Editor, *Growth and Change*, Center for Business and Economic Research, 301 Mathews Bldg., University of Kentucky, Lexington, KY 40506-0047.

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Editor's note: Recently, some staff of the Center for Business and Economic Research at the University of Kentucky moved offices. In the process of reorganization, we came upon copies of the following essay. We reprint it here because we believe it to be one of the better-written and clearly enunciated essays on the subject of industrial development.

The essay was originally written in 1948; because of this, some ideas, themes and expressions are dated. On the other hand, the essay could have been written by one of our contemporaries. We believe our readers will find the essay of interest because of what it suggests about the role local communities play in industrial expansion and economic development and also because these ideas were expressed almost forty years ago.

By republishing the essay here, we do not intend to convey any approval of the ideas or opinions expressed by the author. They do not necessarily represent any positions or opinions of the Center for Business and Economic Research, the College of Business and Economics, or the University of Kentucky.

What Does Industry Expect of a Community?

by H. Y. Bassett*

In practically every community in this great country of ours there is an intense desire to make that particular community the outstanding one in the area, the state, and the country. Every effort is expended to attract industries to the area. An abundance and a diversification of industries in a community, providing jobs, either directly or indirectly, for citizens of all classes, are insurance against depressions and recessions. Through increased revenues from taxation, the opportunity is afforded to improve the school system, increase recreational facilities, and provide better and more complete city, county, and state services.

To this end civic groups in many communities have been organized. These groups are composed of merchants, industrialists, and civic leaders, who may be representatives of the local chamber of commerce or of similar organizations. Often they represent a number of the business people of the community and have no connection with its civic groups. In most cases their efforts are augmented by county or state organizations. Descriptive literature is prepared outlining the advantages that the town, county, and state have to offer. All are working for the purpose of expanding the community through an increase in its industrial activities. Getting additional industries to locate in the town is the principal, sometimes the sole objective.

Their intentions are good. Unfortunately, in many cases too little thought has been given to that phase of the problem which I believe is the crux of the whole question; namely, what will these industries expect in a community? Keep in mind I said "in a community," not "from a community." Too much thought is given to outlining in detail the advantages prevailing in a community—or those things which in the eyes of the group selling the community appear to be advantages. Not enough effort is made to look at the picture from management's point of view. The community should be developed not only in the tangible things which all industries look for in the selection of a plant location, but in the intangible items which represent in many cases the differences between success and failure in any new venture starting in a community.

It would be well to outline first the problems confronting an aggressive, forward-looking business organization, faced with the ever-growing tendency to decentralize production operations, in the selection of a suitable location for any new or added facilities. The successful and profitable operation of a plant in a new location depends to a large extent on the selection of the town and plant site best fitting the needs of that particular concern. What are the things management looks for when making a survey to determine the area and town in which the new facilities are to be located?

In order to accumulate all of the information necessary to reach the right conclusion, certain basic factors, which in most cases are peculiar to the plant or business involved, must be determined by the management. We will assume that the management has given due consideration to all basic economic factors which will have an effect on the selection of the general area in which the new plant would be located. These normally would include the following, again depending on the industry in question and the type of operation contemplated:

1. Nearness to raw materials
2. Nearness to markets
3. Nearness to suppliers and/or subcontractors
4. Availability of suitable labor supply
5. Requirements for and availability of gas, oil, power, etc.
6. Transportation facilities

Within the area meeting these needs, the individual communities would be considered in the light of the following qualifications or basic requirements:

1. Availability of good plant sites
2. Experience of industries already located in the community with the utilities (railroads, etc.), and their cooperativeness with these industries
3. Tax situation with respect to local, county, and state taxes

(Continued on page 10)

**The essay was originally published in 1948 by the Bureau of Public Administration, University of Alabama. Reprinted with permission from the University of Alabama. At the time he wrote this article, H. Y. Bassett was Vice President and General Manager of the Wolverine Tube Division, Calumet and Hecla Consolidated Copper Company.*

selected indicators OF ECONOMIC ACTIVITY

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	April 1986	May 1986	June 1986	Qtr. II 1986	% Chg. 86-I 86-II	% Chg. 85-II 86-II
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ALL ITEMS (NEW DEF)	325.30	326.30	327.90	326.50	-0.24	1.64
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, FOOD AND BEVERAGES	308.50	309.40	309.50	309.13	0.43	2.59
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, HOUSING (INCL RENTAL EQUIV)	358.00	358.50	361.20	359.23	0.69	3.15
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, APPAREL AND UPKEEP	207.30	206.40	204.50	206.07	0.46	0.39
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, TRANSPORTATION	303.30	305.70	308.60	305.87	-3.68	-4.73
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, MEDICAL	428.00	429.70	432.00	429.90	1.85	7.55
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ENTERTAINMENT	272.30	272.90	273.90	273.03	0.54	3.46
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, OTHER	341.80	342.10	342.60	342.17	0.59	6.14
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, SPECIAL INDEX: ENERGY	361.80	367.60	380.60	370.00	-8.63	-14.15
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL COMMODITIES	297.90	299.20	298.90	298.67	-1.93	-3.48
PRODUCER PRICE INDEX, ALL FINISHED GOODS	286.90	289.00	288.90	288.27	-1.28	-1.86
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	281.60	284.20	284.10	283.30	-1.83	-2.96
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	307.00	306.80	307.10	306.97	-2.06	-3.92
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	295.20	295.30	295.30	295.27	-0.47	-1.73
PRODUCER PRICE INDEX, CRUDE MATERIALS	272.80	278.90	274.90	275.53	-5.09	-10.71
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	220.10	228.90	226.10	225.03	-1.14	-4.90
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, SPOT(1967=100)	432.70	429.80	431.30	431.27	-0.05	-0.70
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, CONTRACT(JUNE76=100)	151.20	150.70	150.90	150.93	-0.48	-2.05
PRODUCER PRICE INDEX, ALL CONSTRUCTION MATERIALS	309.40	310.20	309.40	309.67	0.69	-0.32
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	25.10	26.63	26.61	26.11	3.09	-5.03
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	58.14	61.43	61.85	60.48	3.19	-4.66
AVG PRICE FOR ELECTRICITY, PER 500 KWH	40.26	40.33	41.89	40.83	0.61	1.96
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	0.88	0.83	0.81	0.84	-18.31	-22.24
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	0.89	0.93	0.96	0.93	-15.55	-23.94
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	0.81	0.85	0.88	0.85	-15.91	-25.29
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	0.89	0.92	0.95	0.92	-16.05	-24.78
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.06	1.07	1.10	1.08	-14.35	-20.51
LABOR FORCE (SEASONALLY ADJUSTED, MILLIONS OF PERSONS)						
LABOR FORCE, TOTAL (INCL RES ARMED FORCES)	118.93	119.35	119.80	119.36	0.54	2.10
LABOR FORCE, CIVILIAN (EXCL RES ARMED FORCES)	117.23	117.66	118.12	117.67	0.55	2.14
EMPLOYMENT, RESIDENT ARMED FORCES	1.69	1.69	1.68	1.69	-0.26	-0.92
EMPLOYMENT, TOTAL CIVILIAN	108.89	109.11	109.67	109.22	0.42	2.27
EMPLOYMENT, AGRICULTURE	3.22	3.16	3.16	3.18	-1.37	-2.35
EMPLOYMENT, NONAGRICULTURAL	105.67	105.95	106.51	106.04	0.48	2.41
UNEMPLOYED, CIVILIAN, TOTAL	8.34	8.55	8.44	8.45	2.27	0.52
UNEMPLOYMENT RATE, TOTAL LABOR FORCE	7.00	7.20	7.00	7.08	1.72	-1.54
UNEMPLOYMENT RATE, CIVILIAN LABOR FORCE	7.12	7.27	7.15	7.18	1.71	-1.58
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT (B $) (% CHG, ANNUAL RATE)	NA	NA	NA	4179.80	2.94	5.48
U.S. REAL GROSS NATIONAL PRODUCT (B 82$) (% CHG, ANNUAL RATE)	NA	NA	NA	3661.50	0.60	2.75
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B $)(% CHG, ANNUAL RATE)	3468.80	3484.00	3485.60	3486.50	6.41	5.50
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	178.30	178.20	177.40	177.97	1.77	6.46
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1977=100)	124.70	124.20	124.20	124.37	-0.53	0.70
AVERAGE PRIME RATE CHARGED BY BANKS ON SHORT-TERM BUSINESS LOANS	8.83	8.50	8.50	8.61	-8.08	-15.56
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	6.06	6.12	6.21	6.13	-10.99	-18.52
PRIVATE HOUSING UNITS AUTH. 17000 PERMIT-ISSUING PLACES (SADJ THOU)	1885.00	1788.00	1792.00	1821.67	2.72	6.36
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B $)	550.24	556.77	566.10	566.10	3.75	15.03

KENTUCKY DATA

	April 1986	May 1986	June 1986	Qtr. II 1986	% Chg. 86-I 86-II	% Chg. 85-II 86-II
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1656.90	1678.80	1702.90	1679.53	0.82	-0.79
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1491.60	1524.90	1551.50	1522.67	3.70	-1.10
EMPLOYMENT, AGRICULTURAL	56.60	64.10	77.40	66.03	37.86	0.97
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1435.00	1460.80	1474.10	1456.63	2.54	-1.19
UNEMPLOYMENT RATE	10.00	9.20	8.90	9.28	-21.66	2.50
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1269.80	1279.60	1279.20	1276.20	1.90	1.59
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	39.50	39.50	38.30	39.10	0.86	1.03
EMPLOYMENT, CONTRACT CONSTRUCTION	62.40	64.20	65.70	64.10	14.94	15.50
EMPLOYMENT, TOTAL MANUFACTURING	251.30	252.90	253.40	252.53	0.30	-1.26
EMPLOYMENT, MANUFACTURING, DURABLE	136.60	138.10	138.10	137.60	1.52	-1.95
EMPLOYMENT, MANUFACTURING, NON-DURABLE	114.70	114.80	115.30	114.93	-1.12	-0.43
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	66.50	67.30	67.00	66.93	0.65	0.25
EMPLOYMENT, WHOLESALE & RETAIL TRADE	299.20	300.60	302.20	300.67	1.21	1.28
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	60.00	60.20	60.90	60.37	1.80	5.97
EMPLOYMENT, SERVICES (SIC 70-80)	252.60	254.90	254.30	253.93	2.31	2.49
EMPLOYMENT, CIVILIAN GOVERNMENT	233.10	234.80	232.10	233.33	1.52	0.55
EMPLOYMENT, STATE & LOCAL GOVERNMENT	192.90	194.60	191.80	193.10	1.74	1.21
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	38.70	39.50	39.00	39.07	1.12	0.51
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	40.00	40.60	40.10	40.23	1.43	1.94
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	37.30	38.10	37.60	37.67	0.53	-1.14
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	9.76	9.90	9.87	9.84	2.04	3.07
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	10.46	10.53	10.44	10.48	1.49	2.75
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	8.89	9.09	9.16	9.05	2.45	3.55
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	377.71	391.05	384.93	384.56	3.19	3.61
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	418.40	427.52	418.64	421.52	2.93	4.75
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	331.60	346.33	344.42	340.78	3.03	2.37
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	10.82	10.68	11.05	32.55	2.29	-3.07
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	3.15	3.11	3.22	9.47	-5.39	-3.44
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	16.14	15.56	15.71	15.80	-2.21	5.87
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	450.31	435.68	461.87	449.29	-4.15	-23.51
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	27.90	28.00	29.40	28.43	-1.95	-27.71
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	16.17	18.03	16.45	50.65	*	-5.59
HOUSING (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	220.20	192.70	180.90	593.80	41.01	-7.22
HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTHORIZED, 1 UNIT	842.00	702.00	730.00	2274.00	48.24	18.75
VALUATION, HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTH, 1 UNIT	50.17	44.99	48.56	143.71	66.75	32.01
HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTHORIZED, TOTAL	2228.00	979.00	867.00	4074.00	83.27	3.30
VALUATION, HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTH, TOTAL	85.39	52.00	51.96	189.35	78.88	21.99
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	76.95	97.65	86.29	260.89	*	7.54
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	10.06	10.89	10.86	31.81	*	-3.72
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL	262.57	156.22	288.16	706.96	*	10.34
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	70.28	80.85	72.77	223.90	*	7.72
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	89.41	15.14	82.75	187.30	*	3.39
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	35.56	3.92	72.35	111.83	*	18.90
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	42.41	44.87	36.45	123.72	*	0.67
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	16.04	16.53	16.93	49.51	*	-0.48
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	13.07	16.49	14.20	43.75	*	1.15

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY), VALUE OF CONSTRUCTION CONTRACTS;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 17,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

(Continued from page 7)

4. Attitude of the townspeople, business leaders, etc., with respect to
   A. Labor and labor organizations
   B. Company policies and practices
   C. Cooperativeness in supplying the information relative to plant sites, public utilities, transportation facilities, civic activities, community problems, etc.
5. Ability of personnel to be transferred to the new location to fit into local community life
6. Schools and churches available
7. General tone of state and local politics, and soundness of administration of local government services

Whether or not a particular town is selected will depend to a considerable extent on the methods followed by the townspeople in presenting to the management's representatives the information necessary for them to pass upon the town's qualifications. The sincerity and earnestness of the townspeople in presenting both the good and the bad points of their town have, in my opinion, a decided effect on the reaction obtained as far as management's representatives are concerned.

Elimination of what might be termed high-pressure, chamber of commerce sales talk is highly desirable. Avoidance of criticism of the shortcomings of other communities which might be in competition with the town in question is very necessary. An effort should be made to sell the community, not to unsell an alternative location.

Most managements, in selecting a town for a new plant site, recognize that they are faced with a decision which may not recur in the lifetime of any of their representatives. It is, therefore, a tremendously important decision to make in their business life. All decisions are or should be based on facts, and for that reason they expect factual information from the people whom they contact in these towns. They recognize that they are locating in the town not temporarily but presumably for an indefinite period.

The type of cooperation they want, expect, and have every reason to believe they will receive should not end once the town has been selected as a site for the plant, and cooperation of the townspeople should continue as long as the industry is located in that town. Managements also expect cooperation and goodwill from the other industries already located in the town.

Most managements recognize that it is not good judgment to locate in a town where the practices and policies with respect to labor-management relationships are contrary to those carried on in the particular management's existing plants. Rather than disrupt normal labor-management relations in a community by the introduction of new and different ideas with respect to labor-management policies, both the industry and the community would be much better off if that industry would locate its facilities elsewhere.

Progressive managements have no quarrel with unions, but on the contrary feel that they have a place in the present-day world of business. These managements have developed practices and policies with respect to their employees governing vacations, working conditions, hours of work, etc. Likewise, they are intensely interested in the problems of their employees, in the elimination of labor turnover, and in the creation of a stable working force of people interested in the company, its policies, and practices. They seek to develop a feeling among employees that they are working for and are part of a good company and want to continue working for it. These standards management will want to maintain and expand. The policies have been developed over a period of years and, in many cases, through the school of experience. These managements do not pursue progressive labor policies through any spirit of philanthropy. They recognize that to succeed and prosper they must have the right kind of relationship existing between management and labor. It is important in the selection of a community in which to locate that they do not encounter policies and practices contrary to those in which they believe.

Of primary importance to any industry are the services and facilities which a community has to offer. Many of these assume tremendous importance to smaller industries. Among these may be mentioned the public school system, including vocational training, librar, facilities, etc.; churches; recreational facilities; health services; sewage disposal practices; public utility systems, such as gas, power, water, local transportation, etc.; police and fire protection facilities; streets and highways; the efficiency of city, county, and state governmental administrations; the general attitude of city officials, as well as of county and state public officials, toward industrialization of the community by outside business interests; and the attitude of the general public and industries already established toward further industrialization. Important also, as a matter of course, are city, county, and state debts and fiscal policies, and tax programs, past, present, and projected.

It is indeed an unusual community that fulfills industries' needs in all these phases. The mistake should not be made of overlooking in discussions those factors which are lacking or below par. The industry investigating a community will not overlook them, and it is better to recognize the shortcomings and have a constructive plan of action to overcome them than to ignore or minimize them.

The public school system, including vocational training and suitable library and other reference facilities, *is important from a number of angles.* Transferees with families of school age from the main plant to the newly proposed location are going to be intensely interested in the educational facilities offered by the community, with special references to the children's education, while of course the company will be vitally concerned from the point of view of both old and new employees. Furthermore, if the personnel required for the operation of a plant must be of a high mental caliber or if vocational training is a necessity in the employee training program, and if the company is

of such size that incorporation of such a vocational training program under the company's jurisdiction and supervision is out of the question, the absence of a suitable educational system, or the possession of only a mediocre system, will certainly adversely affect the community.

Most wide-awake managements today recognize that only under the most favorable conditions can peak production be reached and maintained. They are very much interested in maintaining the physical, mental, and moral indices of all employees at the very highest levels. Keep in mind that this is not a matter of philanthropy, but of good business practice. Considerable time and money are spent annually by all progressive businesses in physical examinations, aptitude and personality testing, eye examinations, etc., for their employees. Such a program becomes an impossibility in many cases unless suitable health service facilities are available. Even if available, these expenditures of time and money are largely lost unless the community is operating under a local health program that reduces to a minimum the hazards of epidemics, chronic illnesses attributable to poor health control by civic agencies, etc. A typical example of the thing referred to is the control of malaria in the Tennessee Valley, where through progressive practices the threat of that disease has been virtually eliminated.

Recreational facilities are of tremendous importance to most industries. Very few companies are in the position where they can furnish suitable winter and summer recreational facilities for all employees. The use of such facilities in building up employee morale, in physical development, in creating the right feeling toward the company and community, is looming larger in managements' minds with each passing day. An active recreational program is rapidly approaching a "must" in present-day industrial relations. With these activities conducted by management people on company property, the feeling rapidly develops that they represent a company program. This tends to set the employees apart from the community in a privileged position, which is bad for all concerned. The feeling should be developed that the program is a community activity, the company's part being submerged. It is our belief that the carrying out of such plans away from the plant in public facilities is very important.

It is not necessary to stress the importance of utilities, such as gas and power (which may or may not be municipally owned), the adequacy of the city water supply, good highways, and truck, rail, and air transportation in the selection of a community. Where these facilities are privately owned, the policies and practices of the city, county, and state boards of control and the legislative and other government bodies have a definite effect on the operation of the utilities and their desire and ability to expand facilities and/or increase services. The reaction of the utilities to the various control agencies' actions will in a large measure determine the manner in which the industries' requirements and needs can and will be taken care of, not only in the present but in the future. Fair, efficient, uniform, and consistent policies and practices are essential, and if such facilities are municipally owned, these are dependent almost entirely on local city government. The past experience of industry in a community in this respect is the measure used by prospective new concerns.

Transportation facilities within the community fall in the same category. Adequate facilities are essential. Willingness on the part of city government, if the facilities are municipally owned, to expand or extend them to meet needed requirements, and if privately owned, the willingness of local government to take steps necessary in revision of local ordinances, etc., to permit the private utility to expand, is essential. City and county governments must be willing and able to provide necessary street inlets and outlets to the new plant for both passenger and truck travel. Good city streets and county highways are necessary as an inducement to industry to locate in the town, and the responsibility for them falls on the local governments.

Before final selection of a location, industry will wish to investigate thoroughly the financial condition of the state, county, and municipality under consideration. A state, county, or municipality loaded down with long-term obligations will not present a picture conducive to favorable consideration by management. Such a debt load might indicate poor management and improper fiscal policies, and would forecast for the future a tax program which might prove unduly burdensome to a newly established industry. A review of tax legislation; the outstanding debts of state, county, and municipality; the general tax program covering the past 10 years; and the apparent needs for the installation, expansion, or replacement of public services would indicate quite clearly to industry some of the important problems facing it in coming into a community.

Another important factor is the general attitude of state, county, and city officials with respect to industrial expansion by interests outside the state. In many cases our experience has been that those officials render "lip service" to any industrial expansion program, but by their attitudes and actions, as evidenced in local ordinances and state legislation, too frequently indicate that they not only are not interested in industrial expansion, but are actually opposed to it. It is difficult to sell an industry on a community under such conditions.

It will be clear from the discussion to this point that the general tone and temper of local government is of greater importance to the well-being of industry than has sometimes been realized. Sound fiscal policies, an effective health program, good police and fire departments, good schools, efficient municipal utilities—all these and many other things for which industry looks depend in good part on the city (and to a less extent the county) government. If it is inefficient, inconsistent, and subject to the whims of politicians, industry will eventually suffer. If on the other hand it is soundly organized, honest, and in general progressive, industry will benefit. It is difficult to over-emphasize the importance to industry, new and old, of this basic consideration.

The general attitude of the local citizenry, as well as of the industry already established in the locality and the public officials, toward industrial expansion will have a very decided effect on the selection or non-selection of a community. Very often industrial planning organizations are made up of citizens whose primary interest is selfish—they expect either directly or indirectly to derive benefit from industrial growth. They do not represent public opinion, which may be opposed to such expansion, sometimes for very sound and logical reasons. A thorough investigation by a group of management representatives would very seldom fail to disclose this condition.

It is my feeling that both community and industry should avoid subsidies in the form of land grants, buildings, etc. Unless a town has those things which a particular industry requires, it is not the place in which the industry should locate a plant. The granting of subsidies might influence the opinion of management's representatives and lead to the selection of a given town; but in the long run if certain basic factors are lacking in the town's makeup, the choice so made will be an unhappy one for both the community and the industry. Where an industry contemplates the expenditures of large amounts of money for land, buildings, and equipment, the value of the land represents usually a small percentage of the total outlay, and rarely, if ever, would the donation of land for a plant site influence the selection of a community. There is too much involved to permit a management to overlook shortcomings in the basic requirements in return for a free plant site. Furthermore, most managements want to be free of any feeling of obligation to the community or to individuals in the community, which must surely exist where subsidies are granted and accepted.

Generally speaking, the same comments apply with respect to tax exemptions. Most industries feel a definite obligation to the community in which they locate and want to assume their share of the cost of public facilities and services offered by it. While it is extremely difficult to evaluate the worth of the public services and facilities offered, comparative studies usually will provide bases for sound conclusions. Such comparisons will vary, depending on the industry involved, its requirements with respect to those services and facilities, size, etc.

One factor that should be given serious consideration by local, county, and state governments concerns the assessed value of the proposed plant. As stated above, most industries are entirely willing to assume their fair share of the cost of local, county, and state governments. They do not, however, want to be saddled with an abnormal share of the local tax burden. I would like to cite a hypothetical case as an example of the problem facing many industries today. Let us assume that in a locality there is a plant producing a specific product, and based on accepted assessment practices in the area it is taxed on a specified amount, which we will assume is approximately one-fifth of the replacement cost of the equivalent facilities today. A company in the same industry is considering locating in the community; and it feels that, with a comparable plant, about the same employment, and the same use and benefit of local public facilities and services, its share of the local tax bill should be on the order of that borne by the company already established in the community. In its interest to participate in community activities and absorb its share of community costs, serious consideration is given to waiving the option of tax exemptions. After due consideration the industry finds that its prospective practices and the tremendous increase in building and equipment costs, will be five times that of the established industry. The tax burden it would have to absorb is out of proportion to the services rendered, as compared with that borne by the established industry. The new industry's only recourse, under these circumstances, is to apply for tax exemption. It would appear to me that local assessment agencies should give serious thought to this problem. It is the most important factor in forcing companies which would normally waive tax exemption to file for such exemption. The net result of such filing, due to taxes not subject to exemption, is that the new industry's tax bill will more nearly represent its fair share of the local tax burden.

There are certain directions in which a community can make very important contributions which would not be classified as subsidies. Once a town has been selected, many problems face management. These include working out with the community the solutions to problems usually present with respect to power, gas, and water supplies, sewage disposal, roads to the new facilities, housing of personnel transferred from the old location to the new, the obtaining of the cooperation and advice of the managements of the other industries in the town to establish sound relationships, and the coordination of policies and practices with respect to labor and management personnel. There are many, many wholly legitmate ways in which the local people can assist.

The success of a new industry in a town is of paramount importance not only to the industry but to the community itself. Nothing can affect the industrial growth of a town more adversely than the introduction of industries which after a few years will move on to other locations or, because of an unfavorable situation, will be compelled to continue operations under unsatisfactory and unhealthy conditions. Misrepresentation to management by townspeople or by management to townspeople should be avoided at any cost. A frank and open discussion of both the good things and the bad which community and company have to offer each other should enable management to arrive at a correct decision with respect to location. Then those things which are bad are recognized by both. Management's representatives know of them before they make the selection, and there should be no recrimination once they have located a plant in the town and find out that certain desirable elements are lacking.

These comments are presented with the idea that they may prove helpful to the leaders of those localities now involved in industrial expansion. They represent the thinking generally of managements with respect to the methods to be followed in the selection of a location for new

facilities and the factors of paramount importance to industry. Keep in mind that each industry has its own specific and peculiar problems. There are no standard patterns which can be followed without deviation, for each new plant presents a tailor-made problem. Find out what a particular industry requires. Analyze your community, its facilities, its activities, its outlook. Determine its shortcomings, and formulate constructive programs to overcome the deficiencies. Be frank and honest about your community, and demand equal frankness and honesty of management. If there is a question in your minds regarding the suitability of your town for a particular industry under consideration, pass up that industry. You have a tremendous responsibility not only to the community but to the industry, a responsibility that will last down through the years. You can't get all the industries looking for new locations to settle in your community. Select only those whose requirements fit your town's qualifications. Industries entirely satisfied with their operations in your community will be your best advertisement.

(Continued from page 1)

Interestingly enough, employment trends over the past two years or so point to the same conclusion. That is, in such basic employment sectors as manufacturing, farming, and mining, Kentucky's employment trends parallel U.S. employment trends, but Kentucky lags behind the U.S. in employment growth in the important trade and services sectors. That is so, even though much of the employment growth, recent and projected, in Kentucky is in the trade and services sectors.

The slower pace of employment growth in Kentucky's trade and services sectors, compared to the U.S., can be attributed, in part, to the lower level of *per capita* income in Kentucky, the lesser degree of urbanization in Kentucky, and such demographic factors as the higher proportion of young persons and incidence of disabled and disadvantaged heads of households. However, it is challenging to consider whether there are policies or measures that the state might adopt to try to accelerate growth of employment in the trade and services sectors. Industrial development programs have, of course, been mainly structured to increase employment in the manufacturing sector. It would appear that Kentucky needs to take a broader focus in its development programs.

Note

[1]Kenneth P. Johnson and Howard R. Friedenberg, "Regional and State Projections of Income, Employment, and Population to the Year 2000," *Survey of Current Business*, May 1985, pp. 39-63.

Table 1
Projected Annual Rates of Change in Employment: Kentucky, Southeast Region, and United States, by Major Industry Sectors, 1983-2000

	Average Annual Rate		
	KY	SE	US
Total employment	1.1%	1.6%	1.5%
Farm	-0.5	-0.1	-0.2
Nonfarm	1.2	1.6	1.6
Private	1.5	1.9	1.8
Agricultural services, forestry, & fisheries	4.8	3.2	3.2
Mining	1.3	1.0	1.5
Construction	1.6	1.8	1.9
Manufacturing	1.2	1.3	1.3
Nondurable goods	0.4	0.5	0.5
Durable goods	1.8	2.2	1.8
Transportation, communications & utilities	1.4	1.8	1.6
Wholesale trade	1.2	1.7	1.5
Retail trade	1.4	2.1	1.8
Finance, insurance & real estate	1.9	2.4	2.1
Services	1.6	2.3	2.3
Government	0.0	0.4	0.3
Federal, civilian	-0.1	0.4	0.2
Federal, military	0.0	0.1	0.1
State and local	0.0	0.5	0.4

Source: Bureau of Economic Analysis, U.S. Department of Commerce, *Survey of Current Business*, May 1985. All data are from Table 5, "Earnings and Employment, by Industry, Selected Years, 1973-2000, United States, Regions, and States," pp. 49-63.

Average Annual Pay of All Covered Workers 1984 and 1985

Industry Group	United States		Kentucky	
	1984	1985	1984	1985
Mining	$30,157	$31,326	$28,567	$29,021
Construction	20,746	21,351	17,765	17,518
Manufacturing	22,575	23,859	21,343	22,076
Transportation, communications, and public utilities	24,696	25,664	21,407	21,868
Wholesale trade	22,736	23,767	18,966	19,647
Retail trade	10,408	10,732	9,261	9,348
Finance, insurance, and real estate	20,720	22,306	16,839	18,047
Services	16,068	16,840	13,261	13,560
Government	19,232	20,250	17,065	17,548
All nonagricultural industries	18,178	18,976	16,533	16,812

Source: Bureau of Labor Statistics, U.S. Department of Labor, *News—Average Annual Pay by State and Industry, 1985*, USDL 86-361.

Selected Federal Expenditures in Kentucky, FY 1985

by J. Beth Smith*

Some federal receipts are redistributed back to the states through a variety of expenditure programs. The question of whether an equitable redistribution of these funds occurs is often raised by state and local officials and policymakers, as well as by members of the citizenry. Table 1 shows the percent to Kentucky of fiscal year 1985 (FY 85) federal funds by selected categories and for selected programs and/or agencies within those categories.[1] These figures represent data on geographic distribution of federal funds and are prepared by the U.S. Bureau of the Census for the Office of Management and Budget. In 1985, Kentucky received 1.2 percent of total federal funds distributed ($788 billion).

The four broad expenditure categories presented in the table include: 1) grants to state and local governments (13.4 percent of federal funds distributed geographically); 2) salaries and wages paid to federal employees (14.6 percent); 3) direct payments for individuals (44.3 percent); and, 4) procurement contract awards (24.6 percent).[2] The distribution of federal expenditures for selected programs and/or agencies included under each category is also provided.

Overall, the percent distribution of federal funds to Kentucky is 1.2 percent. This is somewhat less than the 1.5 percent of the U.S. population residing in Kentucky, or, a differential of 0.3 percent between Kentucky's proportion of the population and the receipt of federal funds in Kentucky. With the exception of four states (California, Illinois, Maryland and Texas) and the District of Columbia, the overall percent distribution of federal expenditures to a state fell within 1.0 percent, either positive or negative, of the percent distribution of the U.S. population residing in that state. For thirty states, the differential between the distribution of population and federal funds is within 0.2 percent. This seems to indicate that generally, federal expenditures are distributed fairly equitably to the states, and that their distribution is similar to the population distribution.[3]

The category, direct payments for individuals, was also fairly consistent across the states, mirroring the distribution of the U.S. population. For instance, Kentucky received 1.5 percent of all federal expenditures for direct payments for individuals. This equals the percent of the U.S. population living in Kentucky. With the exception of five states (California, Florida, New York, Pennsylvania and Texas), the percent distribution of federal expenditures for direct payments for individuals, by state, was within 0.3 percent of its population proportion. Since this expenditure category is for "individuals," it seems reasonable that the distribution of these expenditures should closely compare with the distribution of the U.S. population.

The other broad expenditure category which had a distribution pattern similar to that of the population was federal grant expenditures to state and local governments. In Kentucky, the percent of federal expenditures for grants was 1.7 percent which is 0.2 percentage points higher than its percent of the U.S. resident population. In all but 11 states, the percents were within a 0.3 percentage point difference. Again, since many of the grant programs provide services to the resident population, the similar distributions between federal expenditures for grants to state and local governments and the resident population may be considered equitable.

The expenditure categories which deviated the most from the distribution of the U.S. population were salaries and wages, and procurement contract awards. As noted earlier these account for 14.6 percent and 24.6 percent, respectively, of federal funds distributed to states. For example, in Kentucky, the percent of total federal expenditures for procurement contract awards was only 0.4 percent. This differs from the Kentucky population percentage by 1.1 percentage points, a considerable differential, especially when one considers that procurement contracts make up about 25 percent of all federal funds distributed to states. In Kentucky, salaries and wages constitute 1.4 percent of the federal expenditures in this category, fairly close to the population distribution. However, several other states demonstrated relatively large differences when comparing the state's salaries and wages expenditure percentage with the state's population percentage. Specifically, 28 states demonstrated a deviation larger than 0.3 percentage points when making this comparison.

Grants to state and local governments and direct payments for individuals are basically forms of assistance. Salaries and wages and procurement contract awards, which total almost 40 percent of all federal funds to the states, are primarily payments in direct return for either goods or services on behalf of the federal government. Therefore, a higher distribution in one or both of these latter two categories is a different form of economic dependence on the federal government than that represented by a higher percentage of receipts in the first two categories.

The percent distribution of federal funds to Kentucky is fairly consistent with the percent distribution of the U.S. population in Kentucky when examining broad expenditure categories. Of the four broad categories, three

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were within 0.2 percentage points of the Kentucky population percentage. Only the procurement contract award category deviated significantly. Examination of most of the subcategories did not indicate a large number of inconsistencies. However, many of the areas where expenditures exceeded the population percent were for compensatory assistance programs.

Notes

[1]Some expenditure amounts were not included because they could not be distributed by state or the data were not available. These include net interest on the Federal Government debt, international payments and foreign aid, selected current operational expenses, expenditures for selected agencies (e.g., Central Intelligence Agency and National Security Agency), and foreign outlays. Therefore, reference throughout this article is to funds distributed by state.

[2]Some expenditures could not be allocated to any of these four categories and were placed in another category. These expenditures accounted for 3.1 percent of total funds distributed geographically and include selected expenditures by the National Science Foundation, the Department of Health and Human Services, the National Endowment for the Arts, the National Endowment for the Humanities, ACTION, and direct payments other than for individuals (e.g., feed grain production stabilization payments and federal employees life and health insurance programs).

[3]As a basis for comparing the distribution of federal funds to the states, the percent distribution of United States resident population was used. While the state's population as a percentage of the national population serves as one means of comparing expenditures among states, it does not consider characteristic factors of a state which may affect the distribution of federal funds within a given expenditure category. For example, relatively larger amounts of federal funds are distributed to Florida for Medicare payments because of the relatively larger proportion of the population age 65 and older which resides in Florida. Therefore, comparing expenditures with the percent distribution of the total population, while generally useful, may be misleading for some states or for some expenditure categories.

Table 1

Distribution of Federal Funds to Kentucky, FY 1985[a]

	% of Federal Funds to Kentucky
Grand Total	**1.2%**
Total, Grants to State and Local Governments	**1.7**
Department of Agriculture—Child Nutrition Programs	2.1
Department of Education—Compensatory Education for the Disadvantaged	2.8
Environmental Protection Agency—Construction of Wastewater Treatment Works	1.2
Department of Health and Human Services	
Medical Assistance (Medicaid)	1.8
Social Services Block Grant	1.6
Assistance Payments Program (AFDC)	1.2
Department of Housing and Urban Development	
Community Development	1.4
Housing Assistance	1.7
Department of Labor—Job Training Partnership Act	1.9
Department of Transportation	
Highway Trust Fund	1.9
Urban Mass Transportation Administration	0.3
Department of the Treasury—General Revenue Sharing	1.6
Other[b]	1.6
Total, Salaries and Wages	**1.4**
Department of Defense	
Military	2.1
Civilian	1.3
All Other Federal Including Postal Service	1.1
Total, Direct Payments for Individuals	**1.5%**
Black Lung Payments[c]	11.4
National Guaranteed Student Loan Interest Subsidies	0.9
Pell Grant Program	1.9
Social Insurance Payments for Railroad Workers	2.3
Medicare	
Hospital Insurance Payments	1.4
Supplementary Medical Insurance Payments	0.9
Social Security	
Disability Insurance Payments	2.2
Retirement Insurance Payments	1.3
Survivors Insurance Payments	1.7
Supplemental Security Income Payments	2.6
Veterans Compensation for Service Connected Disability	1.6
Veterans Compensation for Nonservice Connected Disability	2.7
Federal Retirement and Disability Payments	
Military	1.0
Civilian	1.1
Food Stamps	3.1
Other[d]	2.8
Total, Procurement Contract Awards	**0.4**
Defense	0.3
All Other Federal Including Postal Service	0.8
Other[e]	**0.5**

Source: Bureau of the Census, U.S. Department of Commerce. *Federal Expenditures by State for Fiscal Year 1985*, March 1986. Except as indicated in the table notes, all data are from Table 9, "Percent Distribution of Federal Expenditures by State and Territory: Fiscal Year 1985," pp. 29-32.

Notes

[a]The items listed under each broad expenditure category are not a comprehensive listing of all expenditures within that category. They are the selected items listed in Table 9 of the source and represent the largest expenditure area(s) among all the states within the broad expenditure categories.

[b]Other grant expenditures to state and local governments include a large variety of grants. See Table 2 of the publication cited.

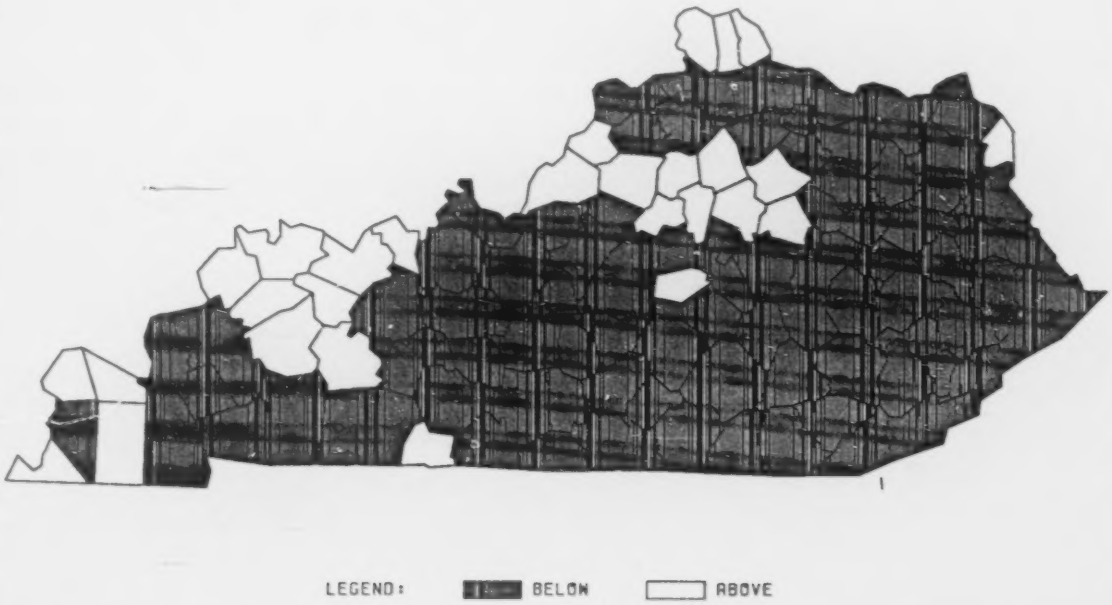
[c]The percent distribution of federal expenditures in Kentucky for Black Lung Payments was derived from Table 4 of the publication cited. It is included here because of its relevance for Kentucky.

[d]Other direct payments for individuals include a large variety of payments. See Table 4 of the publication cited.

[e]Other here includes federal expenditures which could not be allocated to any of the four broad expenditure categories. These include expenditures by the National Science Foundation, the Department of Health and Human Services (for selected research programs), the National Endowment for the Arts, the National Endowment for the Humanities, ACTION, and direct payments other than for individuals.

Geographic Distribution of Counties

on Per Capita Personal Income Relative to the State Average ($10,200), 1984



Source: Bureau of Economic Analysis, U.S. Department of Commerce through Kentucky Economic Information System.

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